

THE MEDICAL JOURNAL OF AUSTRALIA

VOL. I.—44TH YEAR

SYDNEY, SATURDAY, JANUARY 26, 1957

No. 4

Table of Contents.

[The Whole of the Literary Matter in THE MEDICAL JOURNAL OF AUSTRALIA is Copyright.]

ORIGINAL ARTICLES—	Page.	ABSTRACTS FROM MEDICAL LITERATURE—	Page.
The Jackson Lecture—Cutting for the Stone, by Paul Hopkins	93	Bacteriology and Immunology	115
Observations on the Use of "Largactil" in Psychoneuroses, by Ignacy A. Listwan, M.B., B.S., M.D.	100	Hygiene	119
Hysterosalpingography as a Diagnostic and Therapeutic Procedure, by Brian Serjeant	103	PUBLIC HEALTH—	
Some Limitations of Urine Sugar Estimations and Their Significance in the Management of Diabetes, by J. S. Penington	105	Routine Active Immunization of the Child Against Diphtheria, Pertussis and Tetanus	120
REPORTS OF CASES—		Consumption of Pethidine and Morphine	120
A Child Guidance Case and Its Dynamics, by Rose Rothfield	108	OUT OF THE PAST	121
REVIEWS—		SPECIAL CORRESPONDENCE—	
Hutchinson's Clinical Methods	111	London Letter	121
The Clinical Approach in Medical Practice	111	CORRESPONDENCE—	
Handbook of Legal Medicine	111	Factors Affecting the Mortality of Small-Bowel Obstruction	122
Epilepsy and the Law	111	Hæmatemesis and Melenæ: A Survey	122
NOTES ON BOOKS, CURRENT JOURNALS AND NEW APPLIANCES—		OBITUARY—	
Interesting Cases and Pathological Considerations	112	Wilberforce Stephen Newton	122
Advances in Internal Medicine	112	DISEASES NOTIFIED IN EACH STATE AND TERRITORY OF AUSTRALIA	123
Progress in Psychotherapy, 1956	112	POST-GRADUATE WORK—	
BOOKS RECEIVED	112	The Melbourne Medical Post-Graduate Committee	123
LEADING ARTICLES—		NOMINATIONS AND ELECTIONS	124
Cortisone in the Management of Asthma	113	CORRIGENDUM	124
CURRENT COMMENT—		DEATHS	124
Chronic Liver Disease in Young Women	114	DIARY FOR THE MONTH	124
Rayon Mesh Dressing After Skin Grafting and for Granulating Wounds	115	MEDICAL APPOINTMENTS: IMPORTANT NOTICE	124
Reactions to Chloral Hydrate	115	EDITORIAL NOTICES	124
Silage Gas Poisoning	116		
Aluminium Hydroxide and Recurrent Renal Calculi	116		
Post-Graduate Work in the United Kingdom	117		
Sulphonamides Today	117		
Cushing's Disease: Its Radiological Findings	117		

The Jackson Lecture.¹

CUTTING FOR THE STONE.

By PAUL HOPKINS,
Mackay, Queensland.

I AM deeply conscious of the honour you have conferred upon me in inviting me to deliver the Jackson Lecture. In accepting, I was fully aware of my shortcomings, but having known Dr. Ernest Sandford Jackson, as a small boy can know a man much older than himself, and also remembering the great respect my father had for Dr. Jackson's ability and integrity, I felt it a duty to accept the opportunity to pay homage to a great man. Dr. Jackson and my father were closely associated for a number of years, they consulted each other and assisted each other, and my father used Dr. Jackson's hospital, St. Helen's, for many years.

The subject I have selected, having urologic tendencies, is "Cutting for the Stone". The material has mostly been obtained from three books in my possession—"Principles of Surgery", by John Bell (1801 and 1806), and Cheselden's

"Anatomy" (1792)—and from Swift Joly's (1929) book on stone and calculous diseases of the urinary tract, kindly lent to me by Dr. J. J. Power.

According to Swift Joly, the first recorded stone was discovered by Professor Sir Grafton Elliot Smith in an Egyptian mummy, that of a boy aged about sixteen years, found in a grave near Abydos. Elliot Smith found three stones, one in the pelvis, one in the lumbar region and one in the nose, in 9000 mummies examined, so the condition cannot have been common. But it must be remembered that only the wealthy could afford to be embalmed. Swift Joly dates this stone at about 4800 to 4500 B.C. (long chronology); there is no mention of stone in the Ebers Papyrus (about 1550 B.C.).

Hippocrates (460 to 370 B.C.) in his oath commands "to leave this operation to those who are accustomed to perform it", implying that it was performed at that time by persons trained in this work. Another text of Hippocrates is important—"that wounds of membranous parts are mortal"; he was probably referring to bowel membrane, but the later application of this text to bladder membrane had dire results.

About two centuries after Hippocrates comes Ammonius, the Cutter of Stones.

Swift Joly states that the operation of suprapubic lithotomy was described in the Ayur Veda at about the commencement of the Christian era.

¹Delivered at a meeting of the Queensland Branch of the British Medical Association on October 5, 1956.

LITHOTOMIA CELSIANA.

"*Lithotomia Celsiana*" is the earliest written record of the operation of lithotomy, or cutting for stone. It was written by Celsus, a Roman physician of the first century, but the manuscript was not discovered till the year 1443. This operation was later known by the names "the operation of the *apparatus minor*" and also "cutting by the gripe".

The following is an extract of the operation as described by Celsus (Bell, 1801); the full text would weary you.

The operation is full of danger and must never be rashly performed, but only in the spring, in boys from nine to fourteen years of age, whose condition can neither be alleviated nor cured by medicine.

The boy should walk about for a few days, to bring the stone to the neck of the bladder, a moderate diet, avoiding heavy meats, and drinking water alone.

A strong man accustomed with operations, is seated in a high chair, the boy is placed on the assistant's knee with his back against the assistant's chest, the patient's legs are flexed and the hands passed under his arms and he is held firmly in this position. If the patient is strong and lusty, two assistants are required, seated side by side, the chair legs and the assistant's legs are tied together. [The assistant's duties appear to be mainly physical.]

The nails having been pared, the index and middle fingers of the left hand are inserted gently into the anus, the right hand pressing down over the pubis. The stone is grasped by the fingers of the left hand, and held in the neck of the bladder. [There are detailed instructions as to which part of the stone to present to the perineum, according to shape and size.]

Holding the stone down the incision is made, lunate, transverse with the horns looking towards the hips, not far from the anus. A second transverse incision is made, deep in the wound, into the neck of the bladder, urine flows and the stone is extracted. The incision must be adequate to allow the stone to pass easily, as forcing a large stone, through too small an incision will cause hemorrhage and convulsion of the nerves.

The stone if small is extracted with the fingers but if large is extracted with a special hook.

If the stone is too large to extract, without injury to the bladder, it must be broken.

This operation was certainly invented by Ammonius, whence he was named *Lithotomus* or *Cutter of Stones*. The stone was first fixed firmly by the hook. A special instrument of iron was used, of considerable thickness, flattened towards the end, thin but blunt. This instrument was held against the stone, struck sharply on the end, and the stone split, and it was removed in pieces. Care had to be taken that the pieces did not fall back into the bladder.

Celsus also writes as follows:

On the second day if there is difficulty of breathing, retention of urine, and lower abdominal pain, blood is coagulated in the bladder. The treatment is to gently insert the fingers into the bladder, when mostly, the clots will be expelled, if not the injection into the bladder of vinegar and water will dissolve the clots.

There seems to have been some disagreement in the direction of the incision, but Bell produces many convincing arguments that it was transverse, as the description of Celsus implies. However, it is difficult to believe, that nobody discovered the fact that it is bad surgery to cut transversally on a longitudinal tube, which must not be divided, especially as the operation was performed blindly in a sea of blood.

There is no detailed mention of the operation in adult males, but the operation in females is described. In the virgin the fingers were placed in the rectum, as in boys, and a transverse incision was made in the left labium. In married women the fingers were placed in the vagina to hold the stone and a transverse incision was made between the urethra and the pubis. There was no reason to be alarmed, though in women profuse hemorrhage occurred.

Bell believed that Celsus never performed the operation. His description was given in the words of a physician, not

a surgeon. A physician was not permitted to perform this operation (oath of Hippocrates); it was to be performed only by men especially permitted to do so. Celsus described what he saw, not what he did.

Swift Joly, on the other hand, believes that the description of the operation is so clear that Celsus must have performed it many times, which does not necessarily follow.

After the fall of Rome, art and science languished and the operation was performed by itinerant lithotomists only.

In India the writings of Charaka, Suruta and Vagbhata, of the second, fifth and seventh centuries respectively, contain references to stone and an operation, without a staff but with a lateral incision (*apparatus minor*).

In Arabia, Albucasis in the eleventh century described the operation of lithotomy with a slight modification of the instruments, and he devised an instrument for crushing a stone in the urethra.

THE APPARATUS MINOR.

At some period between the time of Celsus and that of Le Raoues the direction of the incision was changed from transverse to vertical.

The incision started well anteriorly, passing just medial to the *tuber ischii* and posteriorly to the side of the anus or beyond it.

The operator cut directly on the stone, by the gripe, holding the stone down by two fingers in the rectum. The structures divided must have been the transverse perineal muscle, part of the uro-genital diaphragm, the *levator ani* muscle, some part of the prostate and the bladder in the region of the neck; the perineal artery, being very close, must on occasion have been divided.

The use of the staff is difficult to date. La Raoues was reputed to cut for stone at any age, and even in the fattest men, but the use of a staff was never mentioned. Frère Jacques, when he arrived in Paris, used a rude rounded staff without a groove. So it would appear that the use of a staff appeared about the time of the introduction of the operation of the *apparatus major*, in which operation a grooved staff was certainly used.

At the *Hôtel-Dieu* Frère Jacques cut six boys by the *apparatus minor* without a staff; all six died, and *post mortem* all were found to have severed urethras.

Later some surgeons—for example, Dr. Charles Bell—used a staff with the *apparatus minor*, thus preventing the most serious complication of this operation, the severing of the urethra.

Pierre Franco.

Pierre Franco, born in 1500, made the next great advance in lithotomy. He was self-taught and specialized in the surgery of stone, hernia and cataract, and he was the first to operate for strangulated hernia. His fame as a lithotomist was due to three innovations. (i) He incised the neck of the bladder and did not stretch it. He invented an instrument with two concealed cutting blades, much like Dupuytren's, which was invented 250 years later. (ii) He performed the operation in two stages. In some cases, after making the incision he left the patients for four or five days before removing the stone. (iii) He was the first in Europe to perform a suprapubic cystotomy. He tried to remove a stone the size of a hen's egg from a boy, aged two years. He was unable to extract the stone through the small pelvis, so he pushed it up till it bulged suprapubically; he cut down on the bulge and removed the stone. He never repeated this procedure, though his patient recovered—he advised against it as being too dangerous.

The Collots.

The family of the Collots were expert lithotomists in France for eight generations. It was founded by Germain Collot, about whom little was known, but Laurent Collot became lithotomist to Henry II (1547 to 1559), to Francis II (1559 to 1560), and to Charles I (1560 to 1574). The Collots maintained complete secrecy of their method, but they used the *apparatus major*, modified by not using the conductors or *latera*. It is said the secret was discovered

only when some surgeons made a hole in the ceiling of the operating room of the *Hôtel-Dieu* and were able to observe the proceedings. Denos considers this merely a legend. Bell states quite definitely that one of the elder Collots wrote a description of the operation in a book which he did not publish. After his death this book was found in a closet, and later it was published. It was the operation of the *apparatus major*.

Le Raoues de Chaffres.

Since the time of Mege and Ammonius, as described by Celsus, this operation had been neglected by men of science and was practised only by quacks—a term freely used by Bell. Such operators, under the title "lithotomists" and "herniary surgeons", were condemned by the learned, but were the idols of the vulgar, and one particularly had the honour of attracting the malignancy of the profession. This was Le Raoues, who practised lithotomy in Rouen, Bordeaux and Niemes with great success. Van Horne describes, with enthusiasm, the wonders of Le Raoues's operation. Van Horne knew a nobleman who was walking down the street with his operator nine days after the operation.

La Raoues's operation was performed in the following manner. He walked the patient around to bring the stone down, he inserted two fingers of the left hand into the anus, and grasping the stone with the fingers pressed it down on the perineum, as near as possible to the right ischial tuberosity. Taking the knife, which till then had been held in his mouth, he made an incision over the stone, first pulling the skin aside with the left thumb, a valvular opening. The incision was on the right side just medial to the tuberosity, vertical and lunate, with the horns pointing to the left hip. The stone was exposed and fell out or was picked out with the finger. The wound was cleansed and the bladder replaced, with a dressing of flour and white of egg to seal the wound. The wounds were excellent, not a drop of urine passing through the wound, and it was healed in six or seven days. Le Raoues operated at any age.

Bell's comment on walking the patient around is worth repeating:

The grave and learned Roman makes the patient perambulate the chamber, the merry Frenchman makes him dance till it falls down. But Van Horne is still more amusing, and requires, I think, too much agility and spirit on the part of his patient, he makes him after dancing a while, leap from the highest stools in the house.

La Raoues's operations were very successful. The surgeons of Paris attacked him, Collot saying that he cut many for stone who did not have one, his assistant slipping him a stone during the operation, and that he received 1000 pistoles (£150) for each operation.

The learned Drelincourt was induced to represent La Raoues in terms of ridicule, and finally he alarmed the people of France about the pollution of their women in terms incredibly low and abominable, and La Raoues had to leave Paris.

The date of this is difficult to fix. Bell quotes Roonhuysen, who in his cases, translated into English in 1676, eulogized Le Raoues's results; but the Collot mentioned was the lithotomist to Henry II of France (1547 to 1559), and more nearly sets the date.

LITHOTOMY BY THE APPARATUS MAJOR.

The operation of Joannes de Romanis or of Sanctus Marianus Barolitanus was first described in the year 1524.

Bell is very bitter about this operation, roundly condemning all who used it. He quotes Heister, who used the lesser operation, explaining the unworthy motives which induced physicians to abandon the lesser operation. "Their fees", he says, "were melting away, their gains and honours were intercepted by Quacks. They invented, therefore, new and curious operations, not to cut men more easily for the stone, but to display their learning."

The operation of the *apparatus major* was based on a text in Hippocrates, which declares that "wounds of mem-

branous parts are mortal"; therefore it was held that the bladder itself must not be cut, so it was decided that the neck of the bladder must be dilated.

The operation was devised by Joannes de Romanis of Cremona in Italy. He did not write about his operation, but Marianus Sanctus Barolitanus describes it in magnificent terms. To quote Bell: "Never was the pride and pomp of Surgery so nobly supported as by this big-mouthed Marianus Sanctus Barolitanus."

The operation of the *apparatus major* was carried out as follows. The patient was placed on a table in the position of the *apparatus minor*, but tied. A grooved staff was passed and the operator, kneeling on one knee, made the incision with a razor. The incision was vertical usually on the left, similar to the lesser operation. Feeling with the little finger for the curve of the staff, the operator opened the bulbous urethra, leaving the point of the knife in the groove, and passed a probe along the knife into the groove and thus into the bladder. Marianus was said to open the membranous urethra, but later, as wounds of membranous parts were mortal, the bulb was opened. The knife and the staff were withdrawn.

The next instruments were the conductors, male and female, strong metal probes, the female with a groove and the male a probe to fit. These had holes in the handles for pins to prevent them from being pushed through the bladder by the dilator. The female conductor was passed first, the groove along the probe, the probe was withdrawn, and the male conductor was passed along the groove of the female conductor.

Dilatation then commenced, the probe in the groove of the conductor fixing one end, and the other ends were pressed apart. When dilatation was at its maximum with the conductors, the dilator was introduced between them and dilatation was continued.

At first the dilators were simple, but later powerful compound dilators were used. When sufficient dilatation had been obtained the dilators were withdrawn, the forceps was introduced and the stone was removed. If the forceps could not remove the stone the latera were introduced, alongside the forceps, and locked on the stone; when the ends closed on the stone the hinges opened, so increasing dilatation.

Dilatation had to be slow. One Le Cat, who operated in Rouen, cut a little of the outside of the prostate (obviously the capsule) to make dilatation easier; his results were no better.

This operation took upwards of an hour, and the shock and suffering of the patients must have been dreadful. The damage done was appalling; the urethra was often torn across or shredded and many other frightful injuries can be imagined.

Bell was a compassionate man, and the suffering of the patients and the shocking surgical injuries aroused his ire against this surgical outrage. Perhaps, looking back some 250 years, we can be more tolerant. Maybe some of these men really did believe that "wounds of membranous parts are mortal".

The results of the itinerant lithotomist were mostly bad. When Frère Jacques, our next candidate, first went to Paris his results were very bad. Some of these men may have felt that it was time that this operation was put on a scientific basis.

The operation up to the stage of opening the urethra was much the same as Cheselden's, but where he cut, they dilated; his results were excellent and theirs were bad. In Australian language, they "backed the wrong horse".

Nearly every surgeon in Paris operated by this method. What is difficult to forgive is that they persisted for so long.

Morand quotes the figures of the *Charité* hospital, where this operation was used up to 1735. No figures were published about this operation till after Morand had been to England to see Cheselden, when after his return he published the figures shown in Table I.

These figures speak for themselves.

Garrison gives the prescription of one of the sedatives used before this operation:

The sponge was steeped in a mixture of opium, hyoscyamus, mulberry juice, lettuce, hemlock, mandragora, and ivy, dried, and when moistened, was inhaled by the patient, who was awakened by applying fennel juice to the nostrils.

One can imagine that this was not a very effective analgesic.

TABLE I.
Authentic List of the Operations in the Charité Hospital.

Anno 1731	14 Cut for the Stone	8 died
1732	11 Cut for the Stone	4 died
1733	16 Cut for the Stone	8 died
1734	17 Cut for the Stone	9 died
1735	13 Cut for the Stone	9 died
Total	71 Cut for the Stone	38 died

The Celebrated Frère Jacques.

We now come to one of the most colourful personalities of those times, Frère Jacques. He said that his name was Jacques Beaulieu; he came from the village of Langonniere in Burgundy, his parents were very poor, and his only education was to learn to read and write imperfectly. He joined the army, and at the age of twenty-one years he became the servant of a quack named Pauloni, who cut for the stone. Frère Jacques claimed Divine inspiration as the origin of his operation, but even in Paris he performed other operations which were peculiar to quacks, so it seems certain that he learned the operation from Pauloni.

He spent six years with Pauloni, and when the latter went to Venice, Frère Jacques stayed at home and commenced operating on his own account. As he approached the age of forty years he became deeply religious, although he never seems to have taken any religious vows; he assumed the habit of a monk, lived the life of a hermit, existing on bread and soup, and resolved to devote his life to charity.

He had many friends and as many enemies. Bell makes the following comment:

Of this celebrated hermit, alternately extolled by his friends and derided by his enemies, what shall we say? Intrepid and fearless, his hand never trembled, nor did his courage falter in the most unlooked for and perilous situations: modest, humble, covetous of nothing but glory, he presented himself in our city, as one sent from heaven, to alleviate the sufferings of his fellow creatures.

Eulogies such as this were common. On the other hand, it was stated that after an operation the local magistrates, impressed by the singular dexterity by which he extracted the stone, immediately gave certificates, and he moved on. If he had awaited the results of his operation the magistrates would have been less enthusiastic. He snatched those certificates with the greedy enthusiasm of a quack, and often, as in Paris, while he was exhibiting his testimonials and boasting of his cures, letters arrived declaring that his patients were all dead.

He operated successfully on a canon of the church, who persuaded him to go to Paris, giving him a strong recommendation to the officials of Notre-Dame. Bell states:

He was aged about 40 when he arrived in Paris in August 1697 habited like a Recollet (a gang of mendicant barefooted friars of the third order of St. Francis) with this variation only, in place of the sandal of that order, he wore shoes, and in place of the cowl he wore a hat.

He must have had a strong personality, as in spite of this extraordinary mode of dress he became the idol of the vulgar and the bane of the profession.

When he arrived in Paris he introduced himself to the Charité hospital through the first surgeon, Maréchal, but the physicians would not allow him to operate.

The friendly canon had introduced Jacques to De Harley, first president of the Parliament of Paris, who became his friend and protector. De Harley ordered Dr. Méry, surgeon of the *Hôtel-Dieu*, to attend an experimental operation by Frère Jacques on a dead body, a stone having been placed in the bladder above the pubis.

Dr. Méry reported as follows:

After introducing a staff, without any groove and of a peculiar form, he took a common knife, remarkable only for its length, he made an incision by the side of the left ischium, and cutting obliquely upwards he divided all the parts between the *tuber ischii* and the staff.

To cut it short, he opened the neck of the bladder and passed in the finger, followed by a conductor, which was followed by a forceps, and the stone was rapidly extracted.

Frère Jacques is credited with operating on nine men in three-quarters of an hour, and the operation of the apparatus major took upwards of an hour.

Dr. Méry gave a very creditable report on this experiment, and Frère Jacques was allowed to operate at the *Hôtel-Dieu*.

Dr. Méry's post-mortem report stated that by comparing the incision with the opposite side of the perineum, Frère Jacques had cut through the skin and fat, about an inch and a half in thickness; that he had then carried his knife between the accelerator (muscle of the bulb) and erector muscles, without wounding either; and that he had cut laterally through the whole length of the neck and half an inch of the body of the bladder.

This operation was on December 7, and on December 14 Dr. Méry was again asked to report on an operation by Frère Jacques on the bodies of a boy and a woman. In the boy Jacques had cut the accelerator muscle (bulb), had almost cut the urethra through, and had injured part of the bladder, behind the pubis. In the woman he had cut the vagina right through and had opened the bladder in the region of the opposite ureter. In women he cut on the right and in men on the left. Dr. Méry's report on this occasion was very adverse and Frère Jacques lost the support of De Harley.

The operation of Frère Jacques at this stage was very much of a hit-or-miss affair; if he hit the stone at the first plunge all was well; if he missed it he felt around for it with a sharp knife, and you can well imagine the damage that was done. It must have been the latter which caused Cheselden to make the following statement in his book:

They say he performed the operation without any direction, and without any knowledge of the parts he was to cut, a thing not to be mentioned without horror. But of late his character has been set in a very different light, and though it is more than probable he, himself knew not what he did, yet there are now, those who pretend to tell us exactly; though if their testimonials are to be regarded, who saw him operate, there is no place that he did not cut one time or other, and therefore he may have a sort of right to be called the inventor of any operation for the stone that can ever be performed in these parts.

Frère Jacques became dispirited and left Paris and went to Fontainebleau, where the Court was situated at that time. He had letters of introduction to the Court physicians, and was well received, and here he met Fagon, a physician of note. He first operated successfully on a boy in the presence of Fagon, Duchesne and Félix, all Court physicians or surgeons, who were very impressed. He then performed six more operations, four in hospital and two on private patients; all were successful and the whole Court was deeply impressed in his favour.

When the Court returned to Versailles, Frère Jacques returned to Paris, strong in reputation and friends. His progress was rapid and enterprising, but the surgeons still opposed him. De Harley called a meeting of the magistrates, the surgeons and the managers of the *Hôtel-Dieu*. This meeting was held in the palace of the Archbishop of Paris on April 7, 1698. Dr. Méry opened the debate and attacked Frère Jacques strongly, his friends spoke for him, and the decision of the meeting was that he was allowed

to operate at the *Charité* and at the *Hôtel-Dieu*—a triumph for Frère Jacques.

It was spring, the season for cutting for the stone in France, and Frère Jacques began his operations in April, and the surgeons and lithotomists of Paris took a deep and lasting revenge. His patients at the *Charité* began to die; of 19 patients cut for stone, only 11 survived. Frère Jacques foolishly accused the monks of the hospital of neglecting the dressings and even of poisoning his patients. This made him many enemies. Then his patients at the *Hôtel-Dieu* began to die; here there were no monks or antagonistic surgeons to blame. Of 62 patients cut in both hospitals, 25 died. Frère Jacques's popularity waned and again he left Paris. Bell is very bitter about this, claiming with truth that these results were as good as, or even better than, those of the *apparatus major*.

Frère Jacques for a time became an itinerant lithotomist, visiting Germany and Holland and operating with some success. His operation had made a deep impression on Fagon, and in 1700 Fagon recalled him to Paris and took him into his house. For many months they studied anatomy, Frère Jacques was introduced to the grooved staff, and it is stated that, after the first incision, never again did Frère Jacques's knife leave the groove of the staff. Fagon put the operation on a scientific basis.

Fagon himself had a stone, and at this time two men, Fagon himself and the Maréchal de Lorges, decided to be operated on by Frère Jacques. Fagon at the last moment changed his mind; he was operated on by Maréchal, a surgeon who had learnt Frère Jacques's operation, and he recovered. The Maréchal de Lorges, a wealthy nobleman, was more faithful, but cautious. He assembled at his *hôtel* 22 poor people afflicted with stone. Frère Jacques operated on the 22 with complete success. Then the Maréchal de Lorges was operated on, and on the second day he died in torture. The death of one so well known was too much, and Frère Jacques left Paris, never to return.

He was called to Amsterdam, where he operated with success, and it was here he met Raw. It was here, according to Cheselden, that Frère Jacques learned the use of the grooved staff from Raw; but it seems more likely that he learned that from Fagon, as it was in common use at that time. Bell holds that Raw learned his operation from Frère Jacques; but Raw was already a well-known lithotomist. Frère Jacques wandered round Holland and Belgium. At The Hague he was presented with a set of golden sounds, and from Amsterdam he received a gold medal. He eventually retired to his birth place; he distributed to his relations his remaining money, and died much advanced in years. He was known to have melted down his golden sounds, and as his gold medal was never found he probably melted that down also.

What of this man? Douglas states that he was "a most profligate abandoned wretch". Bell considers that he should be remembered with respect. Bell had a proper horror of the *apparatus major* and its sufferings and bad results, and he felt that Frère Jacques was the first to break away from this, and that his final operation was a good one.

He had great personality, and before an audience of laymen he was surely a showman if ever there was one. This big, impressive person drives for the stone in one stroke; if he hits it, in a few moments there it is; if he misses, one can imagine the frenzied search he carries on with the point of the knife, quite ignorant of the damage done, completely indifferent to the welfare of the patient. The stone must be produced, the audience is waiting; congratulations are received, the certificate is obtained, and the operator moves on before the tragedies are self-evident.

A layman who had seen the horrors and the length of the *apparatus major* must have been deeply impressed.

That Frère Jacques was a mountebank there seems no doubt, and the credit, if there is any credit, in this dreadful business, should surely go to Fagon for recognizing a possibility and putting it on a scientific basis.

Joannes Jacobus Raw.

Joannes Jacobus Raw, or as it is often spelled Rau (1668-1719), was born in the village of Baden in Swabia in 1668. His father was a wine merchant who was unable to give Raw a proper education. At the age of fourteen years the boy was apprenticed to a surgeon at Strasburg, where he lived for three years. Neglected by his parents, he wandered through Germany and came to Hamburg and entered the services of Frawen, a surgeon. Unable to stand the cold, he went to Amsterdam, where he became a ship's surgeon and went to Spain and other parts. He returned to Amsterdam when King William was about to sail for England with a gallant fleet. Raw was made surgeon to Vice-Admiral Skeyn's ship. When this was over he had saved money. He went to Leyden and studied hard, and then to Paris, where he studied anatomy and surgery under the best masters—du Verney, Méry, Myshevius and Petit. He returned to Amsterdam and taught anatomy and practised surgery.

At this stage he came in contact with Frère Jacques in Amsterdam. Bell holds that Raw attended every operation and roundly condemned Frère Jacques; it is difficult to see how any man with Raw's training could do otherwise. Bell states that Raw copied Frère Jacques's operation; it may have been that, like Fagon, he saw the possibilities and applied his anatomical knowledge to good effect. He certainly got much better results.

For a time during Frère Jacques's short visit his popularity was so great that Raw was obliged to be silent for a time; but results soon justified his predictions, and Raw's popularity was enhanced. He was invited to lecture in the theatres of Leyden, and on the death of Bidloo he was elected to the chair of anatomy.

Installed in his office in 1713, he gave his celebrated oration on "the teaching and improvement of anatomy"; soon afterwards he was elected regent. About four years before his death he sprained his ankle very badly. He was several months in bed, and this enforced idleness brought on melancholy and hypochondriasis. A year before his death he had a stroke, and he died in 1719.

Raw was a justly famous man. Before he delivered his oration he had cut 1540 for the stone, and during his life Bell estimates he cut 3000. He was the most celebrated lithotomist that ever lived.

Raw never published or told the secret of his method. Bell holds this to be a weak, mean streak in his character. Raw must have been a very busy man, with no time for all he had to do. In his later years, when the writing of his method could have been expected of him, his long illness prevented this. However, Bell quotes Raw as telling his pupils that "as for this operation, he was to gain his bread by it, and never would say one word about it, as long as he lived; and that if they did prevail with him to speak of the subject they would do wisely not to believe what he said". So perhaps our idol had feet of clay after all.

The fact remains that Raw never did disclose his method, and after his death his assistant, Albinus, did describe the operation; but Bell states that Raw hid the actual opening of the bladder even from his assistant, so the description was inaccurate.

According to Albinus, Raw made a lateral incision, cut through the *levator ani*, and opened the bladder above the prostate. Cheselden, who copied this operation for a time, had great trouble with the post-operative period and abandoned the operation, so perhaps Bell is right.

During his operation Raw had the habit of holding back the rectum with one finger of his left hand. It was said that this was really to prevent any spectators from seeing what he did in the depths of the wound.

THE ENGLISH SURGEONS.

Most English surgeons up till 1718 used the old method (*apparatus major*); some must have used the *apparatus minor*, as Bell (1806) quotes his brother, Dr. Charles Bell, as performing that operation successfully. Cheselden, whose turn as surgeon to Saint Thomas's Hospital came in 1718, states in his "Anatomy" (13th Edition, 1792):

In the year 1717-18 Dr. James Douglas in a paper, presented to the Royal Society, demonstrated from the parts, that the high [suprapubic] operation, for the stone, might be practised.

Franco (born 1500) had once performed this operation injudiciously, and though his patient recovered it was not recommended by him. Rosset (1680) recommended it, but never practised it except on the cadaver.

About three years later James Douglas's brother, John Douglas (Westminster Hospital), successfully used the high or suprapubic route in two cases. At Saint Bartholomew's Hospital two such operations were performed successfully, but in the next two the peritoneum burst and the patients died, and the surgeons returned to the old way (*apparatus major*).

Cheselden at Saint Thomas's Hospital continued to use the high way. Two died with burst peritoneum, and apart from these two he states that "I lost no more than one in seven, which is more than anyone else that I know of could say". (Cheselden's "Anatomy".) Swift Joly dates the paper "*Lithotomia Douglasiana*" in 1720, and credits John Douglas with writing it. John Douglas was the first to perform suprapubic cystotomy in England.

James Douglas was the anatomist who discovered Douglas's pouch and the semilunar line of Douglas.

In 1723 Cheselden published a treatise on the high operation; this aroused Douglas to attack him, accusing him of plagiarism. After this Cheselden returned to the perineal route and devised his famous lateral operation.

It seems obvious that the fact that attempts at suprapubic cystotomy were so often abandoned would be due to two causes. First, the operation would be difficult without an anesthetic, and the power of the rectus muscle would be difficult to overcome. In fact, it was said that Morand, the first to use the suprapubic route in France, would pull so hard that when the stone came away he would have fallen had he not been held. Second, the risk of injury to the peritoneum was great in a struggling patient, and the tendency of the peritoneum to slough was considerable.

James Douglas was a rather prolific writer, and Bell attacks him, stating that when someone produced something new Douglas published it, often saying he had known all about it before the discoverer. Bell quotes Douglas, after discussing dissections he had possessed for many years, as follows:

Of these ways I always reckoned that practised by Professor Raw to be the one, long before I had heard anything of his true method, even that of Frère Jacques.

Perhaps he was one of those impractical people who do many dissections and get ideas, and do nothing about them.

When Raw died in 1719, Albinus, Raw's assistant, published a book on Raw's method and sent a copy to Douglas. Douglas produced a memoir to the Royal Society, describing the operation.

Bamber at Saint Bartholomew's Hospital and Cheselden at Guy's Hospital and Saint Thomas's Hospital, began to perform Raw's operation. According to Bell, Bamber followed Raw's technique exactly, Cheselden sought a safer way.

Cheselden.

Cheselden (1688 to 1752), designed three operations which today would be regarded as two modifications of the one operation.

In the first operation (1726) the bladder was filled with water and the catheter was blocked and left in. The surgeon was seated on a low stool, the knife in his mouth. The assistant held the catheter and supported the scrotum. The operator's left hand was placed with the palm over the right ischial tuberosity with the fingers spread over the perineum, felt for the staff and put the parts on the stretch.

The incision was made on the left side, vertically, starting one inch below the scrotum and proceeding

obliquely downwards; it passed midway between the anus and the ischial tuberosity and was three and a half inches long, two inches anterior and one and a half inches posterior to the anus. With the index finger of the left hand acting as a guide, and dissecting up through the fatty tissue at the side of the rectum, the surgeon cut all bands and muscles—for example, the transverse perineal. This hollow was fairly laid open to make room for the extraction of the stone.

The surgeon then went straight to the bladder, which was distended, and he must have divided the *levator ani*. He opened the bladder in the same position as it was opened in cutting on the gripe—that is, in the body of the bladder above the prostate—and removed the stone. This was Cheselden's reading of Raw's operation.

Cheselden commented as follows on the results:

My patients for some days after the operation seemed out of danger; but the urine which came out of the bladder continually, lodging on the cellular membrane on the outside of the rectum, made foetid ulcers, attended with a vast discharge of stinking matter, and from this cause I lost four patients out of ten.

He specially mentions one who recovered; this patient had such pain in his leg that he spent a fortnight on his face, on his elbows and knees; his wound soon healed and he did well—obviously owing to drainage.

Bell states that it was here that Cheselden began to think for himself.

Cheselden's Second Operation.

Bell's description of the surgeon's dress is worth repeating:

In place of the surgeon receiving and returning every instrument from his assistants, he should draw each instrument from his girdle. He ties an apron around him, which being firmly girt, he twists a towel through the apron string, fixes the gorget also in the string like a dagger in the girdle, and the forceps he puts in the fore-pocket of the apron. Then advancing to the patient . . .

If he followed the usual practice of the time of holding the knife in his teeth he must have been a fearsome sight and could not be said to follow the modern practice of reassuring the patient. In Cheselden's second operation the bladder was not filled with water and a grooved staff was passed. The procedure was the same in opening the ischio-rectal space, but then, feeling for the staff, he identified the apex of the prostate. He exposed the membranous urethra and cut into this; then, keeping the point of the knife in the groove of the staff, and pushing the knife away from him, he cut through the lateral lobe of the prostate, up to, but not into, the bladder wall. The knife was withdrawn, and the gorget passed into the bladder, the probe point of the gorget being kept in the groove of the staff. The staff was then removed and the forceps passed along the gorget; the gorget was removed and then the stone.

It is here one sees the first indication of the tying of vessels. Cheselden says: "I tie the blood vessels by the help of a crooked needle."

Cheselden gives a warning that the rush of urine on the passage of the gorget caused the patient to strain, and the gorget could easily pass through the top of the bladder. Also the patient should empty his bladder before operation, leaving the bladder evenly contracted on the stone. Sudden collapse of the bladder left the wall in folds, and these may be caught in the forceps.

These were by far the best results so far—better than 10% mortality rate, compared with the *Charté* with over 50%. Several of these patients had small-pox, and some of them died; these have not been included, as Cheselden did not think the proportion of deaths from this distemper more than usual.

Cheselden states that after losing one patient with hemorrhage, if he had a bleeding vessel that he could not find he dilated with the knife till he could see it and tie it.

The reason for the rise in mortality in the third 50 cases is given:

At that time few very bad cases offered, in the third, the operation being in high request, even the most aged and most miserable cases expected to be saved by it, besides, at that time I made the operation lower in hopes of improving it, but found I was mistaken.

Cheselden's book closes here; I quote the final words:

If I have any reputation in this way, I have earned it dearly, for no one ever endured more anxiety and sickness before an operation, yet from the time I began to operate, all uneasiness ceased; and if I have had better success than some others, I do not impute it to more knowledge, but to the happiness of a mind that was never ruffled or disconcerted, and a hand that never trembled during any operation.

TABLE II.
Cheselden's Results at Saint Thomas's Hospital.

Table IIA.

Group of Cases. (Total 213.)	Number of Deaths.
1 to 50	3
51 to 100	3
101 to 150	8
151 to 213	6
Total ..	20

Table IIB.

Age Group. (Years.)	Number of Subjects.	Number of Deaths.
Under 10	105	3
10 to 20	62	4
20 to 30	12	3
30 to 40	10	2
40 to 50	10	2
50 to 60	7	4
60 to 70	5	1
70 to 80	2	1
Total ..	213	20

Bell states that Cheselden performed a third operation which was a small modification of the second. When he reached the apex of the prostate he dissected upwards with the left forefinger, clearing the left side of the prostate till he reached the top of it. Cutting down on the top of the prostate, he placed the point of the knife in the groove of the staff; then, drawing the knife towards himself, he cut through the lateral side of the prostate into the membranous urethra. In that way he avoided injury to the bladder wall, ensured complete division of the prostate, and avoided injury to the rectum.

Bell gives a warning of the importance of looking for a second stone; he also states that if the stone is too large it may be split by a special strong forceps.

The Cutting Gorget.

Sir Cesar Hawkins, an English surgeon, contrived a further modification of Cheselden's operation. He conceived the idea of sharpening the right side of the gorget, so that cutting and dilatation could be performed in the one operation. He followed Cheselden's second operation up to the opening of the membranous urethra.

Placing his left thumb nail in the groove of the staff as a guide, he put the probe point of the gorget in the groove and kept it there, while with a powerful pushing movement the gorget cut its way into the bladder. The remainder of the operation was the same.

The cutting gorget had serious complications. If it was too narrow it did not completely divide the prostate; if it

was too wide it often cut the perineal artery. If pushed too hard it could penetrate the top of the bladder or tear through the urethra. Its tendency to slip was the most serious, as it could pass through the prostate in any direction with disastrous results. In spite of these disadvantages it seems to have been fairly popular, and if an accident occurred some surgeons published vindications of their operation. Bell, in a delightful footnote, states:

It has been my fortune to hear more than one vindication publicly read, but I cannot say I thought them elegant compositions. The common way, I believe, is best—to say nothing about it.

OTHER MODIFICATIONS OF THE LATERAL OPERATION.

Le Cat was in modern parlance a gadget king; he invented many complicated instruments. When the lateral operation was demonstrated to him he said that the knife was not fit for performing the incision of the prostate. He invented a compound gorget-cystotome dilator. He performed a complicated operation, using a staff, a urethrotome, and a cystotome, followed by the compound instrument. It cut a little and dilated a lot, so he could not really leave behind him the *apparatus major*. His results were bad, and he never became a distinguished operator.

Bell states:

It was his fate, to continue through life, writing volumes full of ingenious theories, the pages of which were never soiled by any finger; and to invent instruments still more ingenious than his theories, which were never sharpened for any hand, but his own.

Frère Cosme or Côme.

Frère Cosme was a priest, of an order consecrated to the charitable duties of attending hospitals. He had some training in anatomy and surgery, but he was also an inventor. He devised a knife, which was a concealed bistoury. He opened the membranous urethra and passed the instrument into the bladder. Then he removed the staff, turned the instrument so that the cutting edge faced laterally, and pressed the handle. This instrument was capable of great damage if it was too far in, and it was graduated to show depth. It could injure the dome of the bladder. The results were very bad; one patient is stated to have had the bistoury introduced into the wound 20 times before the stone was recovered; he died.

Frère Cosme wrote a short letter describing his bistoury. Le Cat was furious, claiming that it was a copy of his knife. Bell holds that if Le Cat had not made such a fuss Frère Cosme would have passed into oblivion. The fight became furious, and a committee of surgeons was formed in February, 1755, under Martinière, the King's first surgeon, to investigate the operations on dead bodies. The committee met ten times and the operation was performed 51 times. Frère Cosme, wisely, would have none of it; but a pupil of his, Le Bastide, operated in his stead. The dispute became so fierce that even the King received daily reports on the investigation. The committee, seeing the powerful people on both sides, put an end to this unmannerly scene, giving a "no decision" verdict.

I would quote Bell again:

I have been long persuaded, that many have been employed in inventing instruments, who would have been better employed in learning to operate.

Swift Joly gives Frère Cosme a background of proper medical training, and quotes 316 cures in 330 operations—a very different picture from that given by Bell.

Swift Joly's comment on the argument of the knife is that Le Cat's instrument was useless and dangerous, while that of Frère Cosme rendered great service to humanity.

In 1753 Frère Cosme opened a hospital, and he and his nephew operated on over 1000 patients for stone.

CONCLUSION.

When Cheselden perfected his lateral operation, true to his professional instincts, he published and demonstrated the operation freely. In 1730, Morand, the most celebrated

surgeon in France, hearing of Cheselden's success, persuaded the French Royal Academy of Science to send him to England at public expense. Bell gives an extract of Morand's report:

Cheselden after having overcome by an effort of his mind, and for the good of his fellow-creatures a natural repugnance to operations, performed this in particular with admirable coolness and surprising rapidity; I have often seen him extract the stone in twenty-four seconds, and indeed he seldom took more than a minute in ordinary cases, where there was but a single stone. He cut while I was in London, twenty-seven patients without losing one; the twenty-eighth died; but even before this man died he had cut thirty-one patients with unparalleled success.

Morand published and demonstrated the operation in France, and soon it spread all over Europe, with excellent results. Morand's demonstrations of Cheselden's operation were so popular that admission was by ticket.

What of these men? The transverse incision described by Celsus must have led to injury of the urethra and rectum, so that when next we see this operation the incision is lateral.

Frère Jacques, by his plunging of the knife into the bladder, sometimes brilliantly successful, more often fatal, did demonstrate one important fact—that wounds of membranous parts are not always mortal. It was the failure of the French surgeons to realize this that made Bell so bitter and made him hold that they never did really believe it. Frère Jacques's second operation must have been very similar to Cheselden's, but any credit for that should surely go to Fagon.

Raw, by not ever publishing his method or demonstrating it, must forfeit any claim; his assistant's description shows quite a different method.

Cheselden's lateral operation was the result of a wide knowledge of anatomy, brilliant thinking and great care. He reduced the mortality from approximately 50% to his published figure of 9.3%. The credit for putting this operation on a scientific basis must go to Cheselden. It was discovered in the 1720's, and Bell in 1806 still describes it as the best operation for lithotomy. The lateral operation of Cheselden remained the operation of choice until the suprapubic route was perfected in 1878, when this became the popular method.

Keen's "Surgery" (1908) mentions Dupuytren as incising both sides of the prostate, for which procedure he devised a special knife. Keen also mentions the recto-vesical approach, by which he incised the anterior anal margin, the anterior rectal wall, the prostate and the trigone. This was the method used by the famous Dr. J. G. Beaney, of Melbourne, to remove the stone which caused so much heart-burning and a coroner's inquest.

Choyce's "System of Surgery" (1914) mentions the lateral operation, but advises the suprapubic route.

I have tried to give you the story of "cutting for the stone" from the earliest known times, through the era of the itinerant ignorant lithotomist, to the scientific application of anatomy and of surgical principles to the operation. I hope it has been of some interest.

ACKNOWLEDGEMENT.

I should like to acknowledge a debt to Mr. A. Harpham, radiographer of the Mackay District Hospital, for his excellent photographs, which were used as illustrations.

BIBLIOGRAPHY.

- BELL, JOHN (1801), "The Principles of Surgery", Volume 1.
 BELL, JOHN (1806), "The Principles of Surgery", Volume 2.
 CHESLENDEN, W. (1793), "The Anatomy of the Human Body", 13th Edition.
 CHOYCE, C. C. (1914), "A System of Surgery".
 CRAIG, C. (1950), "The Egregious Dr. Beaney of the Beaney Scholarships", M. J. AUSTRALIA, 1:593.
 KEEN, W. W. (1908), "Surgery, Its Principles and Practice".
 SWIFT, JOLY, J. (1929), "Stone and Calculus Disease of the Urinary Organs".

OBSERVATIONS ON THE USE OF "LARGACTIL" IN PSYCHONEUROSES.¹

By IGNACY A. LISTWAN, M.B., B.S. (Sydney),
 M.D. (Cracow),

HUMAN experiences on the psychological level are due to impulses travelling along nervous pathways in a given direction and with a given speed and accuracy. They reach the respective primary centres, from which new impulses burst onto associative pathways in order to reach other secondary and tertiary centres. Only when a great number of these pathways and centres has been involved does something similar to a thinking process start to crystallize. Through further associations it then becomes organized and directed toward productive goals, or otherwise disorganized, misdirected and conflict-producing. The same applies with some variations to emotions.

In the process of psychotherapy of any school, an attempt is made to attack thought with thought, emotion with emotion. An assumption is made that there exist some formed psychological wholes, or at least clusters, which can be changed completely or adapted partly by other psychological wholes or clusters produced by the therapist. He approaches the structure as a whole, and from there he proceeds to dissection if necessary.

Another way of approach would be not to attack the psychological and already formed structure, but to attack the components *in statu nascendi*. It would mean an attempt to influence the excitation and transmission of nervous impulses through the different associative pathways.

One could say that this way of approach would be rational and physiological, while psychotherapy, although more selective, would be less rational. I realize that I shall here meet strong criticism, particularly as I am not convinced myself about the logical background of the foregoing speculations. Let us therefore elaborate more on it. To use a chemical or physical agent to influence nervous excitation is, of course, not selective, as we do not know what will be the future of the excitation if it is not influenced. In that respect psychotherapy is more selective, as it attacks a ready and mature problem.

Are physical and chemical methods rational? They are, because they attack the problem by the way in which it originated, although on the physiological level. It is true that these methods are for the time being empirical. We hope that investigations will make them less empirical.

Besides these theoretical considerations, there are also practical reasons for advocating physical and chemical methods of treatment in psychiatry. There is a tendency between psychiatrists to welcome these methods of treatment. It is probably due, among others, to the fact that they do not wish to be pushed into the dead-end psychological corner. Another reason is that psychiatrists are conscious of being trained in medicine, and never miss the opportunity to stress it—an obvious compensation on their part, due to prolonged lack of training. And finally there is the difficulty of psychological treatment as compared with the "press-the-button" methods.

It appears from the foregoing that it is and always will be worth while to follow the developments in chemical and physical methods of treatment.

A new and useful drug has been developed recently and introduced as "Largactil", or chlorpromazine. It is not intended to deal in this paper in a systematic way with the compound, as many papers have already dealt with the subject satisfactorily. I should like to draw attention to Australian reports by Morgan, Anderman, Lindsay and Webb.

All papers, or most of them, have dealt mainly with the effects of the drug on chronic mental patients in hospital.

¹Read at a meeting of the Australasian Association of Psychiatrists on October 26, 1955, at Canberra.

There is no report on the effect of the drug in minor borderline psychiatric conditions, which have not a clinical diagnostic label. There is also need for more data on synergistic actions of "Largactil", particularly when it is used in association with narcoanalysis and psychotherapy. An attempt is made in this paper to elaborate on these points.

"LARGACTIL" IN BORDERLINE PSYCHIATRIC CASES.

Method of Investigation.

In the foregoing series a questionnaire was sent to 20 general practitioners, representing 14 single or group practices. The local distribution was equal between residential suburbs (four), industrial suburbs (five) and country areas (five). The questions were not formed rigidly. They allowed for free expression of opinion. There were no leading questions. The side effects were asked for, but not enumerated. The doctors were purposely chosen to represent the sceptical as well as the over-enthusiastic type.

Results.

Age Group and Sex.

Out of 203 persons under investigation, the youngest was aged twenty-five years, the oldest eighty-five years. The peak incidence was in the age groups twenty-five to thirty-five years and fifty to sixty-five years. This is as expected, as will be seen when the diagnostic presentations are discussed. The late adolescent and presenile groups are mostly involved.

There were 147 females in the group and 56 males. It is interesting to record that females prevail not only in psychiatric practice, but also in borderline cases. Some of the conditions probably belonged to the involuntional type and therefore showed up more frequently. Men would probably require retained capacity for work and therefore would not be given "Largactil" because of its quality of producing drowsiness.

Indications for Treatment and Diagnostic Labels.

In the indications for treatment, the main disturbing symptom was usually quoted and not the diagnostic label. One can agree with it wholeheartedly in this type of survey. Figures are not quoted, as the same patient was frequently mentioned under two symptoms. It is interesting that psychosomatic complaints were most frequently stated as indications for treatment. Some cases are accounted for by nausea and particularly vomiting of pregnancy. But even so, about 80 patients were treated with "Largactil" for psychosomatic complaints. Tension and irritability range second and depressive states third in frequency. A considerable number of patients were treated for intractable pain, whether organic or functional.

Only two cases of an obsessive-compulsive state were mentioned, and two of alcoholism. In both improvement occurred.

Dose Employed and Duration of Treatment.

In the majority of cases the dosage was 75 milligrammes per day, divided into three doses. In a few cases the dose of 100 milligrammes was given, and only in five cases 150 milligrammes. As a rule the treatment was given by the oral route, and only one doctor reported having given some injections. The duration of treatment was rather short, the average being between two and six weeks. The majority of patients were treated for rather shorter periods, irrespective of the result.

Side Effects and Toxic Reactions.

Serious reactions were reported in these series, and it seems most important to stress their occurrence in view of the small doses employed.

In one case severe liver failure occurred, owing to the potentiating action of "Largactil" on opium. The patient recovered in three days. The most interesting aspect is that the patient received only one-third of a grain of "Omnopon" by mouth and 25 milligrammes of "Largactil" (Anderson, 1955).

In one case, after four days of treatment with 75 milligrammes per day, the patient developed high temperature and jaundice, which disappeared uneventfully in a few days.

In another case, a man with a history of paroxysmal tachycardia and epileptic fits a few years earlier was treated with 75 milligrammes daily for one week. The indication was arteriosclerotic depression. The tachycardia and epileptic fits returned.

The minor side-effects were only few. Dryness in the mouth was reported very frequently, as well as constipation. Drowsiness is another feature. One doctor wrote:

I once took one tablet and an hour later my wife had to assist me to bed, I was so drowsy. . . . My wife after taking two tablets slept soundly all the day, and had later such a detached feeling, that she could not do her housework.

The above-mentioned details seem to be of great importance in view of the small amount of drug used, the oral route of administration and the short duration of treatment.

Effects of Treatment.

The results were disappointing in depressive states in the older group and in psychosomatic complaints in the younger group. Some doctors discontinued treatment in the young, as the patients could not stand the amount of accompanying drowsiness. The older people probably could take it better. Good results were reported from the use of the drug in irritability and tension, and as a prophylactic measure before facing stresses. Two doctors commented on the necessity to combine the treatment with psychological approach. The doctors had obviously no experience with agitated and confused senile patients. But three cases are reported in which good results were obtained. There is no material available referring to relapses and follow-up periods.

"LARGACTIL" AS ADJUVANT IN PSYCHOTHERAPY.

Theories of Action and Anatomical Relations.

Chlorpromazine has an adrenergic-blocking action; in other words, it counteracts the fight, flight and fright reaction caused by the pouring out of adrenaline. It is assumed that this action is peripheral, as that of all antihistamines. Its central action is not clear yet. It does not act as a narcotic on cortical areas. It rather blocks the higher relaying centres in the region of the hypothalamus, particularly in the vicinity of the thermoregulating and vomiting centre; in clinical terms, it lowers perception for certain sensory stimuli associated with fear. It also reduces the perception in higher centres and causes conscious indifference.

It is obvious that a drug with that action must assist in psychotherapy. We know that the reflex arc responsible for emotions goes so high as to reach the hypothalamus. We know that we can enhance the effect of psychotherapy by reducing the peripheral perception. And finally we know that any acting out of fear reactions in the form of floating anxiety converted into panic is a disadvantage in therapy. It seems, therefore, that both "Largactil" and psychotherapy act on the same anatomical and physiological substrate, and reinforce each other.

Application in Narcoanalysis.

In two cases of very severe obsessive-compulsive neurosis "Largactil" was used in conjunction with narcoanalytical treatment. Both cases were of many years' duration, and the patients had already been given electroconvulsive treatment, insulin and psychotherapy. Both patients were completely incapacitated professionally and socially. In both cases leucotomy was indicated, and in both combined treatment with "Largactil" and narcoanalysis was tried as a last resort. The theoretical reasons for the use of this combined treatment were as follows: (a) "Largactil" causes drowsiness and in some cases tendency to dreams and nightmares; (b) "Largactil" prolongs the action of sedatives and hypnotics; (c) "Largactil" reduces conditioned reflexes and the excitability of smooth muscles, as well as of the white fibres of voluntary muscles.

"Largactil" was given by intramuscular injection in a dose of 50 milligrammes half an hour before "Pentothal" was given. It was also given intramuscularly between the narcoanalytical sessions in a dosage of 100 milligrammes per day in two doses. No oral medication was used while analysis was in progress. The dose of "Pentothal" used was greatly reduced and never exceeded 0.5 gramme. The permanent maintenance dosage of "Largactil" is now 50 milligrammes per day, taken orally.

Both patients improved greatly and the improvement has continued for the periods of one year and six months respectively. Previous psychotherapeutic approach, including narcoanalysis, had not been effective. It has to be stressed that the improvement is attributed primarily to the psychotherapeutic process and that "Largactil" had an effect only on the progress of treatment.

CASE I.—Mrs. G., aged thirty-six years, who had been married for thirteen years, presented herself with pains in the stomach and vomiting associated with tiredness and inability to concentrate at work. She was preoccupied with an idea that a business associate was in love with her, and had ideas of reference not amounting to delusions on that basis. She was also in permanent fear that he might attack her. That state of mind was followed by a state of depression with crying fits and suicidal ideas. Her emotional background was one of restricted childhood with many sexual taboos. After she married her husband, who was much older than herself, she failed to reach orgasm, and her sexual desire became low. Her husband's potency was weak, and the whole situation was conducive to projections and to the formation of obsessions. She had already on two occasions been given electroconvulsive treatment. An attempt was made with psychotherapy on analytical lines. It had to be discontinued, as the patient deteriorated in the first few sessions. She was continuously involved in ruminating about her thoughts and fears, the *rapport* was poor, and she had a tendency to enlarge upon her obsessional ideas, with a possibility that she would form a delusional system.

Narcoanalysis was attempted with the same result. The patient was tense, unapproachable and unwilling to surrender. There was no abreaction. At this stage treatment with heavy doses of "Largactil" was started. From the first day the patient received 150 milligrammes by the intramuscular route, and on the third day tablets were added to the dose of 300 milligrammes per day. This dose was maintained for two and a half weeks. No improvement was noted, and another attempt at narcoanalysis was made. This time each narcoanalytical session was preceded by the intramuscular administration of 50 milligrammes of "Largactil" half an hour before "Pentothal" was given. She received during the day another 100 milligrammes in tablets.

The response was surprising. First, the amount of "Pentothal" used was reduced by 50%. Secondly, right from the beginning the patient abandoned her obsessional thinking, went right back to her past and brought to the surface dynamic factors of importance. It has to be noted that there was no abreaction or only a negligible one. The patient talked about her problems, as if she was viewing them from somebody else's point of view.

The narcoanalytical session was repeated three times, and the attitude to her problem described above was reinforced. There was no recoiling to the dangerous delusional level. That was probably due to lack of abreaction. Her placidity and her detached view of her problems reminded one of a schizoid reaction.

The patient remains greatly improved, although she does not take "Largactil". She is interviewed for supportive purposes occasionally. She has made a good occupational adjustment, and her sexual difficulties have been partly relieved. Her improvement has lasted now for one year.

CASE II.—Mrs. D., aged fifty-five years, who had been married for twenty-five years, had a severe obsessive-compulsive neurosis with intervening periods of agitated depression. The presenting symptoms were fear of aging and dying, rumination about misdoings in the past and rituals to avert the penalty. Compulsion of cleanliness and self-punishment, with cramps in intestines, was another feature. The patient had always been considered the "ugly duckling" in the family, and after she married she became frustrated again. The attitude towards a flight into disease and towards craving for sympathy she took over from her mother. As time went by, she developed signs of the climacteric and came finally to a state of permanent dread of death, which for her had a secondary function of punishment. She had a ten years' history of many sessions of

electroconvulsive treatment and attempts at psychotherapy. The effect at the best lasted only a short time. Leucotomy was considered, and as a last resort treatment with "Largactil" was attempted.

This patient received a very intensive course of "Largactil" with a dosage of 400 milligrammes per day (300 milligrammes in injections) for the period of four weeks. She improved greatly, gave up her ruminations and rituals, and said herself that death or disease would not worry her any more. Spasm in the smooth muscles ceased. It is worthy of note that sugar was persistently found in her urine. No estimation of the blood sugar content was made.

Towards the end of her treatment an attempt was made with "Pentothal", to check on the possible effects of "Largactil" on narcoanalysis. This time no "Largactil" was used before treatment, and she received her ordinary doses during the day. The effect was similar to that described in the first case. The patient recovered material without emotional abreaction, viewed her problems from a distance and was detached in her attitudes. She did not show compulsive or obsessive features. The diagnosis of her condition could not be made under "Pentothal" narcoanalysis. The reaction was rather schizoid in type.

Application in the Interview.

Mary attempts have been made to cut short psychotherapy. It is true that the production of emotional material associated with abreaction is basically important for successful psychotherapy, not to mention transference phenomena and their dynamics. It is equally true that in some cases the so-called intellectual approach seems to have a chance. It is at the risk of "putting one's neck out" that this approach will be discussed. In obsessive-compulsive cases and in many psychosomatic cases abreactive methods are of no help, for obvious reasons. Many tense patients with anxiety states will not respond either. The same applies to intellectualized patients. It appears that in all these cases premedication with "Largactil" is of considerable help. Patients are usually instructed to take 50 milligrammes of "Largactil" by mouth three-quarters of an hour before the interview, with or without two grains of "Sodium Amytal". In most of the cases in which this premedication was used, the interview had the following characteristics: (i) The patient was able to concentrate on the trigger suggestion and stick to it. (ii) There was no emotional abreaction. (iii) There were frequently symptoms of dissociation, with a tendency to observe oneself from a distance. One or two cases showed projections with dissociation. One patient said: "I see my wife as two, the good one and the bad one. I am able to use the one I need at the moment." The whole pattern of behaviour was obviously schizoid. It has to be stressed that this occurred as a rule in non-schizoid personalities. (iv) The uncovering process was mostly not spontaneous and would not satisfy the analytical way of approach. As was mentioned before, the trigger suggestion was followed up to the conclusion, but related associations were not available.

SUMMARY AND CONCLUSIONS.

The rational basis of physical and pharmacological methods of treatment has been stressed. A hope is expressed that, although they are empirical at the present time, they will become more scientific in time.

A survey is presented of 204 patients treated with "Largactil". They all belonged to minor borderline psychiatry. The late adolescent and presenile group were those most commonly involved. Females prevailed in the ratio of 3:1. Psychosomatic conditions, anxiety and tension were most frequent. The dose of "Largactil" never exceeded 100 milligrammes, and was given orally over a period of a few weeks only. Several toxic reactions have been described, and their significance is stressed in view of the small doses used. Excessive drowsiness frequently necessitates discontinuation of the drug for practical reasons.

The interrelation between "Largactil" therapy, psychotherapy and modified psychotherapy (narcoanalysis) has been discussed. "Largactil" lowers perception of fear and causes conscious indifference. By reducing peripheral perception and by blocking certain higher pathways "Lar-

gactil" assists in psychotherapy. Two cases were quoted in which great improvement followed the combined use of "Largactil" injections and narcoanalysis. Besides reducing perception and blocking higher pathways, "Largactil", particularly in narcoanalysis, assists by causing drowsiness, potentiating the action of the anaesthetic and reducing the muscular tension.

In the interview "Largactil" assists by reducing the emotional abreaction and by producing "schizoid-like" attitudes. It is helpful particularly in obsessive-compulsive cases and in psychosomatic fixations.

REFERENCES.

- ANDERMAN, K., and LINDSAY, J. S. B. (1955), "Chlorpromazine", *M. J. AUSTRALIA*, 2: 80.
- ANDERSON, D. (1955), "Opium Poisoning Precipitated by Chlorpromazine", *M. J. AUSTRALIA*, 1: 88.
- BARUK, H., LAUNAY, C., and LÉLORD (1954), "Étude sur l'action thérapeutique du 4560 RP. dans les états d'excitation et d'agitation impulsives", *Ann. méd.-psychol.*, 2: 66; reviewed in "Digest of Neurology and Psychiatry" (1954), 350.
- CHARATAN, F. B. E. (1954), "An Evaluation of Chlorpromazine in Psychiatry", *J. Ment. Sc.*, 100: 882.
- ELKES, J., and ELKES, C. (1954), "Effect of Chlorpromazine on the Behaviour of Chronically Overactive Psychotic Patients", *Brit. M. J.*, 2: 56.
- GARMAN, G. MAX, A. R., and FOLKSON, A. (1954), "The Use and Action of Chlorpromazine", *Brit. M. J.*, 2: 439.
- GOLDMAN, D. (1955), "Treatment of Psychotic States with Chlorpromazine", *J.A.M.A.*, 151: 1274.
- LOMAS, J., BOARDMAN, R. H., and MARKOWE, M. (1955), "Complications of Chlorpromazine Therapy in 800 Mental Hospital Patients", *Lancet*, 1: 1144.
- HILLIARD, E. T. (1956), "The Use of Reserpine, Chlorpromazine and Allied Drugs in Medicine and Psychiatry", *M. J. AUSTRALIA*, 1: 1035.
- LOMAS, J. (1955), "Uses of Chlorpromazine in Mental Hospital Patients", *Brit. M. J.*, 1: 879.
- MORGAN, D. R. (1955), "The Combined Use of Chlorpromazine and Reserpine in the Treatment of Chronic Mental Illness. A Preliminary Report", *M. J. AUSTRALIA*, 2: 77.
- MORGAN, D. R. (1956), "The Use of Reserpine, Chlorpromazine and Allied Drugs in Medicine and Psychiatry", *M. J. AUSTRALIA*, 1: 1029.
- SEAGER, C. P. (1955), "Chlorpromazine in Treatment of Elderly Psychotic Women", *Brit. M. J.*, 1: 882.
- STEPHENS-ANTON, D. (1954), "Preliminary Observations on the Psychiatric Uses of Chlorpromazine", *J. Ment. Sc.*, 100: 543.
- TASKER, J. R. (1955), "Fatal Agranulocytosis during Treatment with Chlorpromazine", *Brit. M. J.*, 1: 950.
- TRETHOWAN, W. H., CAMB, M. B., and SCOTT, P. A. L. (1955), "Chlorpromazine in Obsessive Compulsive and Allied Disorders", *Lancet*, 1: 781.
- WEBB, F. R. (1955), "Largactil in Psychiatry", *M. J. AUSTRALIA*, 1: 759.
- VAUGHAN, G. F., LEIBERMAN, D. M., and COOK, L. C. (1955), "Chlorpromazine in Psychiatry", *Lancet*, 1: 1083.

HYSTEROALPINGOGRAPHY AS A DIAGNOSTIC AND THERAPEUTIC PROCEDURE.

By BRIAN SERJEANT,
Melbourne.

IN 1924, Portret in France and Heuser and Carelli in Argentina demonstrated the uses of hysterosalpingography in sterility, while Bécère and many others contributed to this valuable technical advance. The instrument used was originally introduced by Bécère, the French radiologist, and is described fully by Macdonald in his comprehensive survey of this method of examination.

Briefly the investigation consists of the injection of "Lipiodol", "Neo-hydriol" or some other non-irritating contrast medium through the obturator, which is held firmly in the cervix by two vulsella. Although other more rapidly absorbed contrast media have been tried, "Lipiodol" and "Neo-hydriol" are still in common use and appear to be satisfactory in the majority of cases. In theory, the ideal medium, while possessing good radiographic contrast, should be absorbed in about three or four days. However, some contrast media do not give first-class radiographic shadows and are absorbed too rapidly, at least in certain cases, to allow a positive diagnosis of tubal occlusion or patency to be made. After plastic operations to restore tubal patency, some gynaecologists prefer one of the less

viscous media when the follow-up hysterosalpingographic examination is carried out.

In many cases a preliminary Rubin's test is employed; but this procedure possesses neither the therapeutic nor the diagnostic value of the oil investigation. In a number of cases it has been possible to establish that the Fallopian tubes were patent when it appeared that no gas had passed through into the peritoneal cavity during the Rubin's test. It seems that the preliminary sedation employed may have a bearing on this finding.

Indications.

The indications for hysterosalpingography in a series of approximately 1100 cases of my own were as follows: (i) Sterility. (ii) Post-operative investigation, after tubal implantation or some form of operation to the uterus or Fallopian tubes. (iii) Repeated miscarriage. (iv) Uterine hæmorrhage. Whenever practicable, examinations should be performed at a time when no bleeding is apparent; but in rare cases it may be necessary to ignore slight hæmorrhage, if this is constant, and if hysterosalpingography is considered essential as an aid to diagnosis. In such cases added care is necessary, and the pressure employed should never be high. (v) Localization of a Grafenberg ring. (vi) Pelvic tumours. The investigation was carried out occasionally when uterine fibroids were present, but its value in other pelvic tumours has been found to be limited, apart from the fact that it reveals displacement and distortion of the uterine outline and position of the Fallopian tubes.

No case of extrauterine pregnancy was encountered in this series, but such cases are on record.

Contraindications.

General.

Severe pulmonary or cardio-vascular diseases are held to be contraindications; but in cases of sterility, when such conditions are compatible with pregnancy, hysterosalpingography is not contraindicated. The decision will rarely be a difficult one in cases of sterility, but a problem may arise when such an investigation is required as an aid to the diagnosis of some pathological condition. Each individual case will then have to be decided on its merits.

Acute febrile disturbances are a contraindication.

Local.

Hysterosalpingography is contraindicated in the presence of severe uterine bleeding at the time of investigation, or active infection of the genital tract or pelvis. Normal pregnancy is obviously an absolute contraindication.

Technique.

The hysterosalpingographic examination is usually carried out six to twelve days after the last day of the menstrual period, and in all but exceptional cases the limits should be five to thirteen days after a period. In the great majority of cases the procedure is carried out by either the gynaecologist or the radiologist independently, but in some instances both may work together with considerable advantage.

Adequate sedation is very important, "Seconal" (1.5 grains) being given on the patient's arrival and before a preliminary vaginal douche of sterile water is administered. A comfortable lounge or bed should be available for relaxation, and 75 to 100 milligrammes of pethidine are administered about half an hour before the procedure is commenced.

A preliminary X-ray or fluoroscopic examination should be carried out, particularly when a previous hysterosalpingographic examination has been performed.

The patient is placed in the lithotomy position, and after preliminary swabbing of the cervix with "Dettol" or some other suitable antiseptic, a sound is passed a short distance into the cervix to ensure that it is sufficiently large to allow the obturator to enter. The vulsella are then applied to the cervix, the obturator is passed into

the external os and the instruments are fitted together. In patients who have previously borne children, particularly when the cervix is large and the external os irregular, a more substantial grip of the cervix is required to stop leakage during injection, while in patients with a small cervix, a more lateral application of the vulsellæ will be necessary to allow the obturator to pass between them and enter the os satisfactorily. As soon as this has been done, the adjustable screw is turned in an anticlockwise direction until the rubber acorn on the obturator fits firmly into the cervix.

The patient is now placed in the supine position and the injection is commenced under X-ray screen control (with the use of a current of not more than three milliamperes). This enables the progress of the injection to be watched and any leakage from the cervix quickly remedied. The injection is carried on until the patient complains of discomfort, often described as a "period pain", when it is discontinued until this passes off. Many patients experience little discomfort if they have been given the sedation as outlined above and are well relaxed.

Should the oil pass along each Fallopian tube to its fimbriated end, the investigation is stopped when it is thought that about 1.0 to 1.5 cubic centimetres have entered the tubes, although in some cases, particularly when these are dilated, a further quantity of oil may be required. In some instances it may be seen passing through into the pelvic peritoneum at this stage; but it is not always possible to be certain that this has occurred until subsequent films are taken. It is inadvisable to continue the injection too far, and excessive flooding of the pelvic peritoneum with oil is undesirable.

In those cases in which oil does not pass readily into the tubes, it may be necessary to turn the patient first on one side and then on the other, or to lower the head of the table. The lower part of the abdomen may be massaged gently, and this procedure does seem to relieve pain and discomfort, but is quite unnecessary in many cases. The question of spasm has to be considered in those cases in which "Lipiodol" does not enter the Fallopian tubes, particularly if the cornua assume a rounded rather than the normal pointed contour. Provided that adequate sedation is exhibited and the injection is stopped each time the patient complains of appreciable pain, and that adequate time is taken, it seems that spasm of such a degree as to prevent oil passing through the tubes is very rare. However, in cases in which the patient does not appear to be well relaxed, it may be advisable to repeat the examination, either with or without a general anaesthetic, before making a final diagnosis of tubal occlusion. Amyl nitrite may be given by inhalation if spasm is suspected, but I have not used this method myself.

General anaesthesia may be employed and is sometimes requested. The procedure is essentially the same as when ordinary sedatives are used, but added precautions are necessary. It is advisable to be dark-adapted to a sufficient degree to observe possible intravasation on fluoroscopic screening, as this is more likely to occur under general anaesthesia. Furthermore, the injection must be carried out gently, as the patient cannot complain of excessive pressure. It is also most important to perform the hysterosalpingographic examination strictly during the prescribed time in relation to the menstrual period. In cases of persistent uterine hemorrhage in which a hysteroscopic examination is required as a diagnostic procedure, general anaesthesia is contraindicated.

The progress of injection of oil is controlled by fluoroscopic screening, which should be reduced to a minimum, particularly in view of the region under investigation. A film may be taken as soon as the Fallopian tubes are outlined or at the end of the examination, immediately before the instruments are removed.

In cases in which a uterine abnormality is suspected, particularly a fibroid tumour or a polypus, it is customary to take an oblique or lateral view as well as the usual postero-anterior and antero-posterior films. The number of exposures should be reduced to the minimum consistent with accurate diagnosis.

The patient is recalled next day and a further exposure is made to show passage of oil into the pelvic peritoneum. Should "Lipiodol" be retained in the fimbriæ or the "Lipiodol" pattern appear abnormal, a further film taken in three or four days may be helpful in elucidating the problem. The taking of a film after the vagina has been swabbed may be necessary in those cases in which there are small quantities of residual "Lipiodol" whose exact situation is doubtful.

Complications.

Vasovagal Attacks.

Vasovagal attacks are occasionally seen; but they are rarely of any severity, and do not call for any special treatment in a great majority of cases, apart from lowering of the head of the table. It is advisable to stop the injection until the patient has returned to normal.

Infection.

Fortunately infection is very rare, but a preexisting tubal infection may be aggravated, or very rarely, infection may be introduced from the cervix.

Rupture of Fallopian Tubes.

Rupture of a Fallopian tube should never happen when the patient is conscious. There may be a slight risk if the tubes are diseased and if the patient is anaesthetized; but correct pressure of the injection should obviate any risk. It seems unnecessary to use a manometer, provided that the injection is carried out by an experienced person. Normal tubes will stand a pressure of 350 to 400 millimetres of mercury; but this would never be reached ordinarily, and about 290 millimetres' pressure should be the upper limit.

Venous Intravasation.

Venous intravasation may occur in the following circumstances: (a) when the injection is given at excessive pressure; (b) in the presence of direct trauma to the vascular system; (c) if the injection is given when the endometrium is physiologically unstable; (d) after recent curettage, miscarriage or extensive cervical dilatation.

Although intravasation of varying degrees has been observed on rare occasions, no symptoms have ever been attributed to this cause in the present series of cases.

Should the patient commence to cough during the injection, the procedure should be stopped until intravasation has been excluded as the cause.

Iodism.

No case of iodism has been encountered in this series of cases.

The Use of Hysterosalpingography.

The following conditions may be suggested or established by hysterosalpingography.

The Cervix.

Endocervicitis with dilatation and perhaps elongation of the cervical canal may be found. Dilated ducts or glands may be suggestive of this condition, but the exact diagnosis is better made on clinical grounds. This procedure may be useful in demonstrating a possible early neoplasm or polypus which is not visible through the external os.

The presence of a polypus may be confirmed.

In some cases of recurrent miscarriage, the question of possible incompetence of the internal os may be raised, and certain appearances, as outlined by Rubovits and others, are thought to be suggestive of this condition. However, it would be necessary to review a very large series before the diagnostic value of such appearances could be finally established.

The Uterus.

Malformation of the uterus may be revealed. It may be shown to be bicornuate, double or infantile, and certain other rare abnormalities may be found.

In the diagnosis of malposition, it is advisable to make sure that the instruments are not pushed up when the films are taken, otherwise a false impression of uterine version may be given.

Tumours revealed may be polypi (make sure that the filling defect is not due to an air bubble), fibroid tumours or neoplasms.

Hypertrophic endometritis may be revealed.

Extrauterine Conditions.

Extrauterine tumours and cysts and pelvic adhesions may be found.

In cases of extrauterine tumours and cysts, some information may be obtained when there is displacement of the uterus or tubes, and an abnormal "Lipiodol" pattern in the pelvic peritoneum may be suggestive but usually not diagnostic of such conditions. The appearances would have to be obtained again to be of much significance, as the varying pattern of the small bowel coils and other pelvic viscera may be very confusing.

When adhesions are present in the tubo-ovarian region or other situation within the pelvis, hold-up or pooling of the "Lipiodol" may be observed. Here again the appearances have to be persistent before one is justified in coming to any conclusion. If it is assumed that the tubes are patent, it is impossible, in the present state of our knowledge, to assess on the radiographic appearances alone the effect of adhesions on the passage of the ovum into the tube. Consultation with the gynaecologist is most desirable and helpful in all doubtful cases.

Fallopian Tubes.

The patency of the Fallopian tubes may be (a) free or (b) partial.

The tubes may be occluded. The site of the occlusion should be determined as accurately as possible on either side. The degree of dilatation can also be determined quite accurately. In cases in which hydrosalpinx is present, mulberry shadows may be observed; but to be of diagnostic value these appearances have to be observed again in subsequent films. Similar but transient shadows may be seen as oil passes through the tube into the peritoneal cavity. Rohan Williams considers that in cases in which tubal obstruction is associated with non-homogeneous smeary calcareous opacities adjacent to the site of stenosis, a diagnosis of tuberculous salpingitis and pyosalpinx is justifiable. In the majority of cases, however, the diagnosis must be made or confirmed clinically. A nodular appearance in obstructed tubes may be suggestive of the condition; but here again the diagnosis should be confirmed by other means.

Therapeutic Value.

There is no doubt about the therapeutic value of hysterosalpingography in sterility. Robins and Shapira found, in a series of 889 cases of primary or relative sterility, that 134 of the patients became pregnant. Of the 889 patients, 497 had bilateral tubal occlusion or some serious malformation. Of the 392 patients who had one or both tubes patent or rendered so by the investigation, 34% became pregnant.

It appears that the procedure causes some degree of dilatation of the cervical canal and Fallopian tubes while clearing these parts of mucus and secretion. Fine pliable adhesions may be broken down or rendered non-obstructive; but the passage of oil cannot be expected to have a beneficial effect in cases in which tubal obstruction is due to dense scarring or firm adhesions.

Conclusions.

1. The radiological examination of the uterus and Fallopian tubes is safe, provided that the criteria for this procedure are adhered to strictly.

2. This examination possesses an undoubted therapeutic value in certain cases of sterility.

3. As a diagnostic procedure it is valuable in a number of uterine abnormalities and conditions, while tubal occlusion or patency may be established with a high degree of accuracy.

4. Indications, contraindications and possible complications are briefly outlined.

Acknowledgement.

I am indebted to my senior partner and colleague, Dr. Colin Macdonald, for his advice and help, particularly during the earlier stages of this work.

References.

- BÉCLÈRE, C. (1929), "La perméabilité et les obturations tubaires. Stérilité. Infections salpingiennes", Masson, Paris.
 BÉCLÈRE, C. (1933), "A propos des injections vasculaires accidentelles au cours de l'hystérosalpingographie", *Bull. Soc. d'obst. et de gynec.*, 22:31.
 HEUSER, C. (1925), "Lipiodol in the Diagnosis of Pregnancy", *Lancet*, 2:1111.
 MACDONALD, C. (1945), "Hysterosalpingography in Sterility", *M. J. AUSTRALIA*, 1:142.
 PORTRET, S. (1924), *Bull. Soc. franç d'électrothér. et radiol.*, 32:173.
 ROBINS, S. A., and SHAPIRA, A. A. (1931), "Value of Hysterosalpingography; A Study of 1000 Cases", *New England J. Med.*, 205:380.
 RUBOVITS, F. E., COOPERMAN, N. R., and LASH, A. F. (1953), "Habitual Abortion: A Radiographic Technique to Demonstrate the Incompetent Internal Os of the Cervix", *Am. J. Obst. & Gynec.*, 66:269.
 WILLIAMS, E. R. (1950), "A Text-Book of X-Ray Diagnosis by British Authors", 2nd Edition, Volume III: "Tubal Rupture", 679; "Tubal Tuberculosis", 696.

SOME LIMITATIONS OF URINE SUGAR ESTIMATIONS AND THEIR SIGNIFICANCE IN THE MANAGEMENT OF DIABETES.

By J. S. PENINGTON,
Melbourne.

It has been observed frequently, in the management of the diabetic out-patient, that results of estimation of the concentration of sugar in the blood and the urine do not correlate regularly. Furthermore, during a glucose tolerance test, sugar may appear in the urine when the blood sugar concentration is decreasing, although the urine contained no sugar when the blood sugar concentration was the same, but increasing. It was therefore decided to investigate these phenomena in the hope that a pattern of relationships between blood and urine sugar concentrations would be defined.

Method.

Nine diabetic patients were selected on the basis of the ease with which catheter specimens of urine could be collected. The patients were in hospital either for stabilization of their diabetes or for general medical care. Brief notes on these patients appear below.

On the day of the test the patient took normal meals, the dose of insulin being adjusted in the hope of ensuring glycosuria at some stage during the test. A catheter was passed and left *in situ* during the test. The blood sugar concentration was estimated hourly for eight hours, the initial sample being taken before the morning dose of insulin was administered, except in Case IV, in which the test commenced before the midday meal.

Urine was collected at half-hourly intervals for two hours, and then hourly, the bladder being emptied ten minutes before the sample was collected. The sample of urine was collected five minutes after the blood sample. Blood sugar concentrations were determined by Maclean's method, with the use of capillary blood. The urine was tested by one technician who used a standard ward testing procedure with Benedict's solution, the results being expressed as high, moderate or low concentrations of sugar.

In cases V and VI the volume of the urine samples was recorded and the concentration of the sugar in the urine estimated by Maclean's method.

The blood urea concentration excretion test (Krieger) and the urea clearance test were used as tests of renal function. Needle biopsy of the kidney was obtained in six cases.

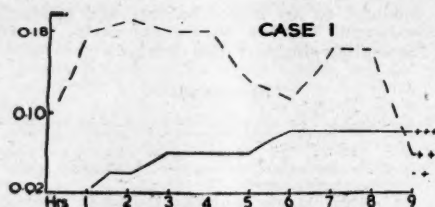


FIGURE I.

Case I: Blood sugar concentration (interrupted line) in grammes per centum; urine sugar concentration (solid line) as low, moderate, high.

Clinical Notes.

CASE I.—The patient was a male, aged sixteen years, who had had *diabetes mellitus* for six years; it had been difficult to control because of frequent hypoglycemia. He had been

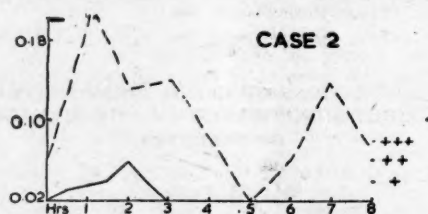


FIGURE II.

Case II: Blood sugar concentration (interrupted line) in grammes per centum; urine sugar concentration (solid line) as low, moderate or high.

admitted to hospital for stabilization of the diabetes with lente insulin and a diet containing 240 grammes of carbohydrate. Renal biopsy revealed some glomeruli lined with tall columnar epithelium, but no other abnormality. The blood pressure was 140 millimetres of mercury, systolic, and 90 millimetres, diastolic.

CASE 3



FIGURE III.

Case III: Blood sugar concentration (interrupted line) in grammes per centum; absolute amount of sugar in ten-minute specimens of urine (solid line) in grammes per centum.

CASE II.—The patient was a female, aged twenty-eight years, who had had *diabetes mellitus* for one month. She had been admitted to hospital for stabilization with "Iso-phane" insulin and a diet containing 200 grammes of carbohydrate. Her renal function was good. Her blood pressure was 130 millimetres of mercury, systolic, and 90 millimetres, diastolic.

CASE III.—The patient was a female, aged sixty years, who had had *diabetes mellitus* for two years. She had been admitted to hospital for investigation of hypertension. Her diabetes was controlled with a diet containing 150 grammes of carbohydrate and no insulin. Renal biopsy revealed slight arteriosclerosis and patchy interstitial and glomerular fibrosis. The blood urea content was 100 milligrammes per

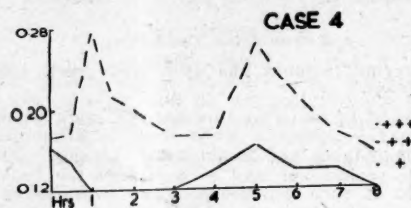


FIGURE IV.

Case IV: Blood sugar concentration (interrupted line) in grammes per centum; absolute amount of sugar in ten-minute specimens of urine (solid line) in grammes per centum.

100 millilitres and the urea clearance (Van Slyke) was 117%. The blood pressure was 190 millimetres of mercury, systolic, and 120 millimetres, diastolic.

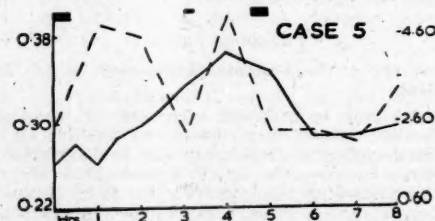


FIGURE V.

Case V: Blood sugar concentration (interrupted line) in grammes per centum; absolute amount of sugar in ten-minute specimens of urine (solid line) in grammes per centum.

CASE IV.—The patient was a female, aged fifty-three years, who had had diabetes for at least twenty years. She had been admitted to hospital in a state of mild acidosis precipitated by gastro-enteritis. Her diabetes was controlled with a diet containing 200 grammes of carbohydrate and 48

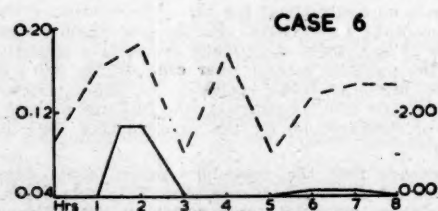


FIGURE VI.

Case VI: Blood sugar concentration (interrupted line) in grammes per centum; absolute amount of sugar in ten-minute specimens of urine (solid line) in grammes per centum.

units of regular insulin twice a day. Her blood pressure was 150 millimetres of mercury, systolic, and 80 millimetres, diastolic. Her blood urea content was 51 milligrammes per 100 millilitres. The urea clearance (Van Slyke) was 210%. Renal biopsy revealed slight arteriosclerosis and occasional fibrotic glomeruli.

CASE V.—The patient was a female, aged thirty years, who had had *diabetes mellitus* for twelve years; it had been adequately controlled with protamine zinc insulin and regular insulin and a diet containing 150 grammes of carbohydrate. She had been admitted to hospital for investigation of a chronic brain-stem lesion. Her renal function was good. Renal biopsy revealed slight arteriosclerosis and exudative glomerular change. Her blood pressure was 140 millimetres of mercury, systolic, and 110 millimetres, diastolic.

CASE VI.—The patient was a female, aged fifteen years, who had had *diabetes mellitus* for three years. She had been admitted to hospital for restabilization with lente insulin. Her renal function was good and a renal biopsy gave normal results. Her blood pressure was 120 millimetres of mercury, systolic, and 80 millimetres, diastolic.

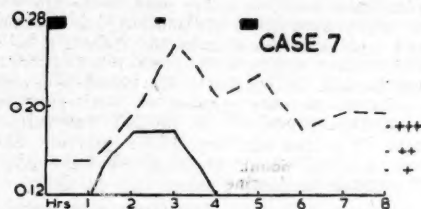


FIGURE VII.

Case VII: Blood sugar concentration (interrupted line) in grammes per centum; urine sugar concentration (solid line) as low, moderate or high.

CASE VII.—The patient was a female, aged forty-two years, who had had *diabetes mellitus* for fourteen years. This had been well controlled initially on protamine zinc insulin and regular insulin, and recently it had been controlled with "Isophane" insulin and a diet containing 150 grammes of carbohydrate. She had been admitted to hospital with cellulitis of the foot. Her blood urea content was 70 milligrammes per 100 millilitres. The urea clearance (Van Slyke) was 130%. Her blood pressure was 180 millimetres of mercury, systolic, and 90 millimetres, diastolic.

CASE VIII.—The patient was a female, aged sixteen years, who had had *diabetes mellitus* for three years. There had been difficulty in stabilization due to frequent hypoglycemia;

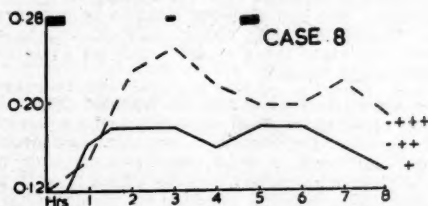


FIGURE VIII.

Case VIII: Blood sugar concentration (interrupted line) in grammes per centum; urine sugar concentration (solid line) as low, moderate or high.

stabilization was finally effected with lente insulin, semilente insulin and a diet containing 240 grammes of carbohydrate. Her renal function was good and a renal biopsy gave normal results. Her blood pressure was 140 millimetres of mercury, systolic, and 100 millimetres, diastolic.

CASE IX.—The patient was a female, aged forty-two years, who had had *diabetes mellitus* for five years. She had been admitted to hospital for stabilization with lente insulin, semilente insulin and a diet containing 150 grammes of carbohydrate. Her renal function was good. Her blood pressure was 140 millimetres of mercury, systolic, and 90 millimetres, diastolic.

Results.

Glycosuria was present at the beginning of the test only in three instances in which the blood sugar concentration was above 170 milligrammes per 100 millilitres.

In four cases (Figure I) the urine contained sugar when the blood sugar concentration fell to levels at which there had been no glycosuria while the blood sugar concentration was increasing. The concentration of sugar in the urine in Case I rose throughout the test, although the blood sugar concentration was falling. The anomalous initial findings in Case IV may be due to the fact that this test commenced before the midday meal and not before breakfast.

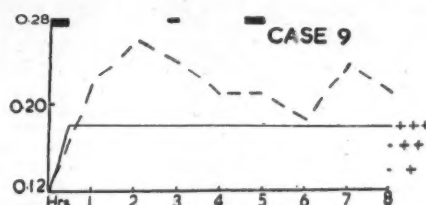


FIGURE IX.

Case IX: Blood sugar concentration (interrupted line) in grammes per centum; urine sugar concentration (solid line) as low, moderate or high.

In Case V (Figure II), although glycosuria was present throughout the test, the concentration and amount of sugar in the ten-minute samples of urine rose as the blood sugar level fell.

In Cases VI and VII the tests for sugar in the urine gave negative results, although the blood contained sugar at a concentration previously associated with glycosuria. A similar pattern presented in Case VIII.

Discussion.

The most important feature of the results of this admittedly limited investigation is the lack of correlation between the concentration of sugar in the urine and in the blood when these estimations are made as an isolated event. This lack of correlation has led to an unjustifiable diagnosis of "low renal threshold for glucose" in a number of cases, and in others has led to confusion in adjusting the dosage of insulin required by a diabetic when only urine samples are examined. However, if the blood and urine are examined for sugar at frequent intervals over a period in excess of that usually regarded as adequate in clinical practice, then a pattern of relationships may become apparent.

It appears that the concentration of sugar in the urine is not an indication of the blood sugar concentration unless performance of the urine test follows a previously sugar-free urine specimen, or unless all specimens of urine are sugar-free. Even then the urine may not contain a detectable concentration of sugar in spite of a sustained rise in blood sugar concentration.

It follows therefore that the diagnosis of a "low renal threshold for glucose" cannot be sustained in the presence of diabetes unless there is glycosuria at a blood sugar concentration which is of subthreshold value, and rising; or unless the glycosuria is present in spite of persistently low blood sugar concentrations. Also, in the management of the diabetic out-patient, it becomes necessary to concentrate attention on the fasting, pre-luncheon and evening specimens of urine in that order, if one is attempting to adjust the dose of insulin on the results of urine tests without concomitant blood sugar estimations.

It is frequently stated that the normal renal threshold for glucose is in the region of 170 milligrammes of sugar per 100 millilitres of blood. Such a statement, although of some clinical value, has no physiological meaning. The concept of renal threshold for glucose is far better replaced by the consideration of the glomerular filtration rate and tubular reabsorptive capacity (Govaerts, 1952). The variability of this so-called threshold has been recorded previously in relation to renal glycosuria (Lawrence,

1948), but does not appear to have been adequately investigated in the diabetic with glycosuria at low blood glucose concentrations.

An increase in the tubular reabsorptive capacity for glucose has been observed as the blood sugar concentration increases in patients with glycosuria at low blood sugar concentrations (Robertson and Gray, 1953). Friedman *et alii* (1942) have demonstrated a similar rise in tubular reabsorption of glucose in cases of renal glycosuria. However, these investigations have all been made under conditions of steadily increasing blood sugar concentrations, and no records have been found of observations of renal tubular function while the blood sugar level is falling in the presence of glycosuria.

The mechanism of the glycosuria in these cases remains to be demonstrated; but it appears that the changes in the urine must be interpreted in the light of the previous glucose load. If a constant glomerular filtration rate can be assumed, then the changes in the degree of glycosuria will depend upon alterations in renal tubular function. It is conceivable that saturation of the mechanism of glucose reabsorption may occur apart from changes in glomerular filtration rate.

Summary.

The anomalous urine and blood sugar concentrations in nine diabetic patients are discussed, and the importance of these findings in the management of the diabetic outpatient is indicated. The criteria for the diagnosis of a low renal threshold for glucose in a patient with *diabetes mellitus* are reviewed; the limitations of the concept of the renal threshold for glucose are indicated.

Acknowledgements.

I wish to thank Dr. Pincus Taft for permission to investigate this problem in the patients under his charge and for his helpful criticism, and to acknowledge the generous help of Miss B. Splatt and the staff of the biochemistry laboratory of The Royal Melbourne Hospital.

References.

- FRIEDMAN, N., SELZER, A., SUGERMAN, J., and SKOLOW, M. (1942), "The Renal Blood Flow, Glomerular Filtration Rate and Degree of Tubular Reabsorption of Glucose in Renal Glycosuria", *Am. J. M. Sc.*, 204:22.
GOVAERTS, P. (1952), "Physio-Pathology of Glucose Excretion by the Human Kidney", *Brit. M. J.*, 2:175.
LAWRENCE, R. D. (1947), "Symptomatic Glycosurias: Differentiation by Sugar Tolerance Tests", *M. Clin. North America*, 31:289.
ROBERTSON, J. A., and GRAY, C. H. (1953), "Mechanism of Lowered Renal Threshold for Glucose in Diabetes", *Lancet*, 2:12.

Reports of Cases.

A CHILD GUIDANCE CASE AND ITS DYNAMICS.¹

By ROSE ROTHFIELD,
Melbourne.

Mrs. D. was referred to me by her family physician about the difficulty she was having with her little daughter Joan, aged nine years. Mrs. D. was a middle-aged English woman, attractive, and expensively dressed. She had consulted her physician about Joan's "sleep walking", as she called it, which had begun a few weeks earlier and persisted almost every night. Joan would get out of bed some time during the night, walk about in an agitated way, wringing her hands, muttering to herself, brushing aside any effort to lead her back to bed; she often took off her pyjamas and walked around with nothing on. At first she went outside the house, but her mother prevented this by locking all the doors and hiding the keys. Joan would walk from room to room, and if left alone would eventually lie down on the floor and continue to sleep.

¹Read at a meeting of the Australasian Association of Psychiatrists, October 11 to 14, 1954, at Melbourne.

Generally she seemed to wake up and calm down, and then her mother would put her back to bed and she would sleep. She had a very vague recollection of these episodes in the morning. The physician was present at one of them, and he thought that the child was awake. He made a tentative diagnosis of epileptic equivalents. He prescribed phenobarbital tablets, but these had no effect. No abnormality was found on physical examination of the child.

Mrs. D. also complained about Joan's behaviour during the day. She said that the child was disobedient, unobliging, and "made herself hateful in every way" in the home. At school she did fairly well, passed every year, showed no behaviour disorder. At home, however, she quarrelled with her mother every day, generally almost all the time they were together. She never did what she was told, and argued until her mother was screaming or crying and had to be pacified by the father, if he was at home. The mother said that she could not understand why Joan made herself "so hateful". She could be a charming, lovable child if she only wanted to, but apparently she did not. Every request of the mother was refused, and this started off a long and very bitter quarrel. She often threatened to leave home, and did go off for a while, only to return some time later.

There is one other child, Margaret, aged seven years, who is "no problem whatsoever". Joan is very envious of Margaret and treats her with contempt. The family consists of father, mother, Joan and Margaret. Father is a wealthy business man, in his late forties, who is not very interested in either his wife or his children. He spends all his free time drinking with "the boys". He is not interested in women, and for a long time Mrs. D. and her husband have had no sexual relations and little or no social life together. Mr. D. gives his wife a good allowance and full responsibility for the care of the home and the children, and pursues his own life without them. There is no quarrelling or unpleasantness between husband and wife. Mrs. D. is hurt by her husband's lack of interest, but has adjusted herself to it with tolerance. She does not demand more of him than he can give. She wept a little when she told of her unhappy marriage, undoubtedly a severe frustration for her.

Mrs. D. felt that the present problem with Joan was a sign that in some unaccountable way she had failed as a mother, and was anxious to be told what to do to relieve the situation. She had a strong need to be reassured that she was "doing the right thing" and, if not, to be told what was "the right thing to do". She lay great store by "doing the right thing".

At the second interview Mrs. D. brought Joan. From a superficial observation Joan appeared to be a healthy girl without serious disturbance. She was attractive and intelligent and made a good, easy contact with me. It was obvious from the school reports which Mrs. D. brought along, that there was no question of mental retardation, and therefore psychological testing was in this case not indicated. I decided to work with the mother alone, at least for a while, in order to learn more about the mother-child relationship, the flexibility of the mother, and the degree to which the mother's personality was contributing towards the child's behaviour. Besides this, the mother was asking for help, and therefore this was indicated whether or not the child would require direct treatment (possibly at some later date).

I explained to the mother that if we discussed the problem together in more detail we might be able to understand it better and together work out some solution. She readily agreed to this plan and decided to keep her visits to me a secret from Joan, as they were from her husband. I was obliged to respect her wish to keep her husband from knowing about the treatment. However, I considered it a disadvantage that I did not see him.

Appointments were not mapped out ahead. Each time Mrs. D. came I concluded the interview by asking her whether she would like to come again and how soon, thus leaving the initiative very much in her hands. I felt that I should do this to impress on Mrs. D. that she was going

to do the work, that I was acting merely as a consultant. I felt that she badly needed to regain confidence in herself as a mother. Because she felt that the problem was a result of her failure, she needed to feel that favourable changes would be due to her efforts.

At the third interview Mrs. D. went into more detail about herself and her attitude to Joan. She had married in her late thirties and was happy to have the first baby, Joan; but from the very first was afraid of her and anxious about her. She always wanted to do everything "just right". She struggled to keep up her milk supply for breast feeding and actually did manage to breast-feed the child for eight or nine months. She was meticulous about cleaning and dressing the baby, began toilet training early, when the baby was a few weeks old, and therefore never had a dirty napkin. She said that the baby accepted the training and there was never any trouble. The baby thrived exceptionally well; there were never feeding or any other difficulties. In spite of this the mother was always anxious about her. She could not leave her alone for a while, but would run in and out to make sure that she was all right.

There was no such anxiety about the second baby, Margaret. The mother could leave Margaret for long periods of time and not fear that she would come to grief. With Joan this anxiety persisted until the present day. Mrs. D. was afraid that because Joan behaved as she did she would grow up into the kind of woman nobody would like. (This was in spite of the fact that the bad behaviour was not carried into her outside relationships.) Their quarrels were often provoked by the mother's fear that the child would come to harm and her attempt to prevent this; for example, if Joan had not put her slippers on after the bath, her mother told her to put them on or she would catch cold. If Joan was slow getting ready for school, her mother asked her to hurry or she would be late and be punished for it. Nearly every morning the mother was in a state of fury and exasperation from arguing and urging Joan to hurry. She was sure that the child deliberately tormented her. She could not understand why Joan did not want to do things for her as other children did. She was afraid that Joan hated her. Often during a quarrel Joan would say: "You don't love me"; and her mother would answer: "How can anyone love you when you act in such a hateful way?" I asked her whether she was not actually saying that she did not love the child, and she said: "Well, yes; I don't. I can't love her when she behaves like that."

Apparently Mrs. D. expected her children to be obedient and always perfectly behaved. She admitted that she required a high standard of behaviour. Bad behaviour meant to her that the child hated her, and then she felt hatred towards the child.

I asked her why Joan would repeatedly reproach her mother about not loving her if she did not love her mother. She said that she had wondered about that. I said that it looked as if Joan was very worried about her mother's love and, like all children, very much in need of it.

Mrs. D. then told about her unhappy childhood. She was the eldest of three children—herself, another girl and a boy—all very close in years. The girl was the youngest and therefore favoured, the boy was delicate and often ill, and required a great deal of special attention. Although her father was sympathetic to her, her mother was very strict and hard. She felt that the mother favoured the two younger children, and her memories of her mother were mainly of being punished—smacked or locked in her room. She remembered being locked in her room one day for some small offence, and while there having a bilious attack. She called out to her mother, but her mother completely ignored her and left her alone in pain and vomiting. She had to be promptly obedient and never dared argue. I said: "Do you expect Joan to be obedient to you just as you were to your mother?" To which she replied: "I don't want my children to be unhappy as I was. I try to do everything right for them and I want them to regard me as a friend." I said: "Yet

you expect them to be absolutely obedient. Perhaps this makes Joan feel that you are rather hard on her, like you felt about your mother."

Then she said that she grew up without much affection for her mother. Although her parents were wealthy and did not want her to work, she trained as an interior decorator and took a job instead of staying at home. At the age of thirty-three years she applied for a position with a large firm in Australia and came out from England alone, without knowing anyone here. She did very well in her work, had 45 people working and training under her, has always got on well with all kinds of people, and in all the years of working and accepting big responsibilities has never been faced with a problem with which she could not cope until she had Joan.

Even with Joan she felt that she did cope well enough over the last nine years, but it was always a strain and a worry. When the child was at all difficult in the early years she hoped that it was always "just a phase and that she would grow out of it". It had been only during the last year or two that the present situation developed.

At the fourth interview Mrs. D. said that she could see that Joan was not happy, and yet she continually provoked quarrels and arguments. She could not understand why Joan did this, and why she carried on and on with the arguments until her mother was screaming or crying. I pointed out that sometimes people developed patterns of behaviour which they repeated automatically; that they had no control over this behaviour, which they might dislike and be most unhappy about. I said that it might be beyond Joan's power to avoid arguing and quarrelling. It was also possible that Joan was provoking the quarrels because she wanted her mother's attention (love), and that was one way of getting it. In other words, it would be a sign of love, not hate. I asked her if she could sidestep all the issues that were likely to lead to their quarrels—for example, ignore the child's bare feet after the bath or her dawdling in the mornings—and leave it to Joan to accept the responsibility for her actions. Mrs. D. readily appreciated the fact that if she herself did not argue there would be no argument. This had not occurred to her spontaneously, mainly because of her own compulsion to persecute the child with commands and advice. She said that she was very fussy about details. Everything around her must be in perfect order. She was house-proud and had a strong sense of duty, an urge to battle out a point until the other person admitted that she was right. Even after such a victory she had the desire to continue pointing out how right she was. She began to realize that this behaviour of hers was aggressive and that to some extent it was very similar to Joan's.

After further discussion along these lines the interview ended. At the following interview she was much happier and told how she had started to avoid issues. It brought with it immediate improvement in the home atmosphere, and with the improvement in Joan's behaviour Mrs. D. found the necessary encouragement to continue. She also found that she felt more loving towards Joan and was able to show this to the child.

Mrs. D. said that the night episodes had stopped completely now, so I asked her to discontinue the phenobarbital, as the cause of the cessation might be either the phenobarbital or the improvement in Joan's emotional balance.

Subsequently the episodes did not recur and they have not done so since. This interview and the last one several weeks later consisted of working over the same ground that we have broken into. Mrs. D. related incidents in which she had lost her own control and an argument had developed. She also told how she was ill (hypertensive) after Margaret's birth, and because of this she had had to leave the care of Joan in the hands of a series of housekeepers for a period of several months, while she could do little more than look after Margaret. Another contributing factor to Joan's strong jealousy of Margaret was the fact that Margaret had rheumatic fever at about the age of four years and was in bed for months, requiring extra

care. Even now Margaret requires special care, such as penicillin injection, from a doctor before she has a tooth out. Curiously enough, Mrs. D. told me with great emotion about Denise, Joan's little girl friend, who lives in the same street, goes to the same school and is in the same class as Joan. This little girl is asthmatic and had had severe infantile eczema. Mrs. D. felt a strong disapproval of her. She said she was spoilt, precocious, a bad influence on Joan, and an entirely unsuitable companion. "She brings out the worst in Joan." Mrs. D. tried repeatedly to break up the friendship and appealed to me for support against Denise. I was quite passive in the face of these efforts. It appears that the intolerable attribute Denise possessed was her lack of discipline, her fairly unrestricted freedom both in speaking and in acting. Mrs. D.'s disapproval of Denise may possibly have been due to Joan's strong interest in and attachment to her. The significance of this triangular relationship was not apparent to me at the time, except that I thought it odd that she used up so much of her time with me to vilify Denise and her "unprincipled" parents. The interview ended with Mrs. D. saying that she believed she could go on alone from there, and she was to get into touch with me again if necessary. I did not ask her to bring Joan for direct treatment. By now it was clear that Joan's behaviour was a normal reaction to an abnormal situation.

There was ample provocation in the mother's behaviour to produce Joan's defiant response. Joan was refusing to satisfy her mother's unresolved infantile needs—that is, the repetition of Mrs. D.'s relationship with her own mother (to be the submissive, frightened child).

One may infer that until Margaret came the mother was able to love Joan more, just as she may have been more loved herself until her own siblings were born.

We do know that chronic stress may have the same effect as a trauma (Fenichel), and it seems feasible that Joan was unable to master the emotional storms with which she had to contend during the day. This would therefore interfere with her sleep, causing the agitated walking around the house at night. It is likely that she suffered from the repetition dreams which are a primitive mode of mastering undischarged excitation.

In differential diagnosis one must consider (a) hysteria, (b) epileptic equivalents.

Consistent with epileptic equivalents were the semi-conscious episodes and the irritability and tendency to quarrel. However, the episodes occurred only at night, the irritability and quarrelsomeness were confined to her relationships at home, never outside it, there was no family history of epilepsy or any other psychopathy. Furthermore, the night episodes themselves did not lack motive (as is characteristic for epileptic equivalents). The episodes did not respond to phenobarbital, but ceased soon after the stress situation was relieved. Had the episodes not ceased, an electroencephalogram would have been indicated. There was a definite repetitive pattern of going from room to room and, before the doors were locked, going into the garden. This gives a picture more akin to hysteria.

With regard to hysteria, we know from patients who have had deep analysis that sleep-walking sometimes expresses a tendency to run away from home or to participate in the parents' night life (Fenichel). Joan actually said, in her quarrels, that she was leaving home, and made a show of doing so. Nevertheless, the diagnosis of hysteria is not likely, because the child was now in the latency period and there was no evidence of symptoms in the early years. There were no other apparent symptoms of hysteria.

There was no evidence of a severe disturbance in her libidinal economy apart from the night episodes. As the child was not taken into treatment, however, a diagnosis—that is, the meaning of the night episodes—was not possible. We have no knowledge of her phantasies, and only the mother's opinion and observation of her mental state (both before treatment and after). It is therefore impossible to make a diagnosis with any certainty, except to guess at a traumatic neurosis.

It is unusual that a symptom as severe as these night episodes should clear up so rapidly with the treatment confined to the mother, and on such a superficial level.

Dynamics of the Treatment.

During the treatment, Mrs. D. began to accept the child. Hitherto there had been a very strong unconscious identification with Joan, the firstborn, like herself the elder, but also, like herself, the unloved daughter. Because her mother had been strict and unloving, therefore Joan had to have a strict and unloving mother. Furthermore, early feelings of being unloved and badly treated were now reinforced by her unhappy marriage, wherein her husband does not love her or give her any degree of sexual gratification. Possibly the deterioration in her relations with her husband increased her feelings of being unloved and brought with it hate for the child invested with her narcissism.

With Joan she repeated the ambivalent relationship she had had with her own mother, identifying herself with the cruel mother and Joan with herself. She does not identify herself with Margaret, and the relationship between them is a good one. (Unlike Joan, Margaret is not required to fulfil her mother's unresolved infantile needs.)

In the transference I became for her the strict but kind mother. I accept her (and her child), therefore she can likewise accept her child. In the transference she now has a loving mother, therefore by identification with the therapist she can become a loving mother. There is no longer need to deny the child a better mother than she had, because now she also has a better mother.

This better mother allows and helps her to express her aggression towards her child and her mother. This liberates her aggression and channels it away from the child.

Furthermore, by reassuring her that the child wanted to be loved and give love, I was holding up reality against her distortion of it. As soon as she was able to see the real child (Joan) she lost her fear of her and could relax her hostility towards her.

Further change in the mother's behaviour was brought about by utilizing her severe super ego through the transference situation. For her unconscious, I was her parent imago urging her to help her sick child, albeit at great cost to herself.

The same super ego, which until now had compelled her to persecute the child, was now used to modify her own aggressive impulses. In other words, her high inflexible moral standards, to a great extent the introjected mother imago, had acted as an overwhelming pressure on the child. This, however, had resulted in the intolerable situation where she saw herself as a failure. The same high moral standards demanded that she rectify this failure, no matter how difficult she found it. Extra strength to do this was given by me, the mother figure whose suggestion meant for her "the right thing to do".

I saw Mrs. D. again recently after four years. Joan is now aged thirteen years and growing up "very nicely" according to her mother. She does well at school, and there is a happy, frank relationship between mother and daughter that Mrs. D. never thought possible four years ago. There are occasional quarrels, but (I quote her mother): "Even when she is very bad she is never vicious." They often disagree about some procedure, but after the mother puts forward her point of view, Joan considers it and frequently says: "I think you are right; I can see it your way." The mother often then has to fight back the urge to ram the lesson in harder. Occasionally she does, but Joan pulls her up by saying: "Don't go on with it, you'll only confuse me"; and her mother appreciates the hint.

Mrs. D. sees her husband as an image of what she used to be like—left out of the children's world, expecting them to act like grown-up ladies, unable to laugh with them in their jokes and games. She often has to explain the father's lack of understanding to Joan, who is critical of him and his detachment.

Mrs. D. said that on thinking over the whole problem she believed that the hardest thing she ever had to do in her life was to be kind and loving to Joan, because actually she had hated her.

The reason for her recent visit was to ask me how to answer Joan should she ever discover what her mother did regarding Denise. Mrs. D.'s hatred of Denise had apparently continued until some time ago. Denise and Joan had played truant from school and gone horse-riding for a whole day. Mrs. D. went to the school and complained about Denise's bad influence and also about her family, "who are the talk of the neighbourhood". The result was that Denise was expelled from school. Mrs. D. said she was now terrified of what she had done, and that Joan might hate her for it if she found out (which, however, is not likely). Mrs. D. told me that since our interviews four years ago she had not felt that constant anxiety about Joan. It seems that she has relaxed her aggression unconsciously as well as consciously. It seems that the mother's need to hate and persecute the evil, undisciplined child was transferred to Denise, the child's love object and one closely identifiable with her. This allowed a redirection of her aggressive impulses. Unfortunately, however, it did not take a healthy direction; it is irrational, uncontrolled and dangerously approximating the original persecution of her child. It indicates that much of the love-hate conflict is still unconscious and threatening to break down the present harmonious balance.

One would be more confident in the stability of this balance if the mother was to have further treatment.

Reference.

FENICHEL, O. (1945). "The Psycho-analytic Theory of Neurosis", Warton, New York.

Reviews.

Hutchinson's Clinical Methods. By Donald Hunter, M.D., F.R.C.P., and R. R. Bomford, D.M., F.R.C.P.; Thirteenth Edition; 1956. London: Cassell and Company, Limited. 7½" x 5", pp. 467, with many illustrations in colour. Price: 18s. 6d.

It is a pleasure to see a new edition of this classic text appearing almost sixty years after the first, and still in the lifetime of the original author. Generations of students and practitioners have regarded this slim volume as their clinical Bible, and the present authors have wisely restricted the size of the book so that it may still be conveniently carried from lecture room to ward, and even find a permanent place in the doctor's bag; yet within these limits an enormous amount of information about the clinical investigation of the patient has been included. At the end of the chapter on each system, brief mention is made of the more specialized diagnostic tests, and the useful section on laboratory investigations is retained. The chapter on the cardiovascular system has been extensively rewritten and includes a new section on electrocardiography. The section on examination of the throat, nose and ear has also been rewritten. Throughout the book the accent remains on bedside examination without ancillary aids, in the best traditions of British medicine.

Only minor criticism can be made. One would like to see a short chapter on endocrine and metabolic disorders collecting together information at present scattered throughout the book; and a short section on vaginal examination would deal with a method with which every physician and general practitioner must be familiar in the investigation of general medical problems. With these slight reservations the new edition can be wholeheartedly recommended to students and practitioners.

The Clinical Approach in Medical Practice. By G. E. Beaumont, M.A., D.M., F.R.C.P., D.P.H.; 1956. London: J. and A. Churchill, Limited. 9" x 6", pp. 483, with many illustrations. Price: 45s.

THIS is an interesting and instructive book written by the author of "Applied Medicine". The book is divided into three parts. The first part consists of a number of descriptive cases. In some of these the patients had rare diseases, while in others they fall into that still more difficult category

of those with a common disease presenting in a most unusual manner. The cases are portrayed with a wealth of clinical detail together with full laboratory investigations. One's attention is held by the realistic description of the patients and their surroundings, the fidgety relatives and the numerous difficulties encountered in making a diagnosis.

The second section of the book is devoted mainly to the case commentaries of patients with tuberculosis. It may be summarized in the statement that tuberculosis is a treacherous, relapsing disease, particularly in subjects of low resistance, and that it frequently wrecks the lives of patients.

In the third section of the book cases are illustrated by question and answer. This section is most enjoyable and is highly instructive. If the author's ward rounds resemble the accounts given in the book he must be a highly stimulating clinical teacher. The discussions cover a very wide field of knowledge in anatomy, biochemistry and the interpretation of pathological tests. The references to the history of medicine are particularly interesting.

The book is not without faults. It is surprising, for instance, to read of a patient with an advanced cerebral tumour being subjected to a lumbar puncture, and the author's comments on other doctors seem sometimes rather unkind. However, this book can be unhesitatingly recommended to the student of advanced medicine as an instructive and readable account of disease which should stimulate the reader to further study.

Handbook of Legal Medicine. By Louis J. Regan, M.D., LL.B., and Alan R. Moritz, M.D.; 1956. St. Louis: The C. V. Mosby Company. Melbourne: W. Ramsay (Surgical), Limited. 8½" x 5½", pp. 201, with illustrations. Price: 43s.

THIS small and handy-sized volume is the ideal book for the general practitioner who wishes to obtain some elementary knowledge of the relationship between law and medicine. It has an advantage over the larger volumes in that no space is devoted to case references, which tend only to confuse the doctor, however helpful they may be to the lawyer. The whole ground is quite adequately covered from the medical practitioner's point of view.

The introduction underlines something that must have occurred to every medical man who is called upon to give evidence in the courts. The authors write: "It is indeed strange, but nevertheless true, that when law and medicine are cast together into the administration of justice, conflict and error, rather than cooperation and truth, often result." Both professions are probably equally blameworthy for this unfortunate state of affairs.

An unusual feature of this book is that the table of contents, as distinct from the index, is arranged in alphabetical order, making the finding of any particular subject extremely easy. One might wish that this practice was adopted by other writers. At the end of the volume is a useful glossary of both medical and legal terms. Throughout the text are numerous illustrations, which emphasize the points the authors are trying to make.

Although there is not a great deal of reading matter, the work is surprisingly comprehensive. It deals with the physician-patient relationship in Part I and with various forms of scientific medico-legal investigations in Part II. There are, of course, the usual sections on consent for operation or autopsy, abortion, negligence, malpractice, the medical witness, workers' compensation and allied subjects, but the telling points are hammered home in a novel fashion by small illustrations.

There is one rather surprising statement on the subject of insurance. This is that the writing of personal liability insurance for doctors has been found unprofitable by a number of the major insurance companies. Surely it is being carried to an extreme by the comment: "If the situation worsens and the market freezes to the point where the coverage is unavailable, only the really bold will venture to practise medicine." This, at least, is something which we do not have to contemplate.

Epilepsy and the Law. By Roscoe L. Barrow and Howard D. Fabing, M.D.; 1956. New York: Paul B. Hoeber, Incorporated. 8½" x 5½", pp. 190. Price: \$5.50.

A SOMEWHAT disappointing feature of this book is that so little space is devoted to epilepsy as a defence in criminal law. Perhaps in the United States of America it is not raised as a defence as often as it is in our courts, where the magic words "automatism" and "amnesia" frequently re-

echo. Apart from this mild criticism, there is nothing to find fault with.

Some of the aspects of the subject are not of practical importance here, but they are of interest just the same. Perhaps some day our thoughtless legislators may be tempted to pass Acts which will place the unfortunate sufferer from this disease in the same unhappy position as he is in certain States in the United States of America. For example, 17 States now have statutes prohibiting marriage of epileptics based on the false premise that epilepsy is a strong hereditary condition. It is appalling to think that there are sterilization laws in 28 States, and that 50,000 persons have been sterilized under these statutes. The number of epileptics included in these figures is not known, but the United States Supreme Court has affirmed the constitutionality of eugenic sterilization legislation. In view of these facts and the difficulty the epileptic finds in obtaining employment, it makes one wonder if the ancient superstition that they were possessed of devils has entirely died out.

Other chapters deal with driving licence laws and workers' compensation Acts as applied to epileptics. The authors conclude with a sympathetic section of findings and recommendations. If the latter were put into operation, the lot of these victims of the "falling sickness" would be a happier one, and they would then take their rightful place as useful members of the community.

Notes on Books, Current Journals and New Appliances.

Interesting Cases and Pathological Considerations: And a Numismatic Suggestion. By F. Parkes Weber, M.A., M.D., F.R.C.P., F.S.A.; 1956. London: H. K. Lewis and Company, Limited. 9" x 5½", pp. 81, with five illustrations. Price: 18s. 6d.

FROM a long life of medical work, Dr. F. Parkes Weber has collected together a series of mostly brief publications. They have nearly all appeared in well-known medical journals, and relate to a variety of pathological phenomena. The "numismatic suggestion" mentioned in the title is set out in a reprinted letter to the president of the Royal Numismatic Society; the idea is that a small annual prize should be awarded to young collectors and others for the best-written diagnosis of the contents of a bowl of miscellaneous coins and coin-like objects after a short examination. The idea was not adopted, but the letter is reprinted in the hope that someone may take it up.

Advances in Internal Medicine. Edited by William Dock, M.D., and I. Snapper, M.D.; Volume VIII; 1956. Chicago: The Year Book Publishers, Incorporated. 9" x 6", pp. 366, with illustrations. Price: \$9.00.

THIS annual publication does not set out to give a broad picture of all advances in internal medicine. Each volume has consisted of contributed articles on specific subjects in which the current knowledge of that subject is surveyed. Volume VIII has eight such contributed articles. Franz J. Ingelfinger writes on disorders of oesophageal motor functions. Joseph B. Kirsner and Walter L. Palmer review recent literature pertaining to the aetiology, pathogenesis and certain clinical aspects of peptic ulcer. Bernard Lown writes on digitalis and potassium. John A. Leutscher presents the modern work on aldosterone. Olof H. Pearson discusses adrenalectomy and hypophysectomy in the treatment of advanced cancer. William F. Russell describes the chemotherapy of tuberculosis. Henry A. Schroeder writes on trace metals and chronic diseases. R. J. Watson takes us into a somewhat specialized field with a paper on hæmoglobins and disease. Each article has a bibliography, and author and subject indexes increase the reference value of the book.

Progress in Psychotherapy, 1956. Edited by Frieda Fromm-Reichmann, M.D., and J. L. Moreno, M.D.; 1956. New York and London: Grune and Stratton. 9" x 6", pp. 363. Price: \$8.50.

THE Section on Psychotherapy within the American Psychiatric Association has been responsible for the preparation of this volume, which consists of material presented at symposia arranged by the section at the annual meeting of the American Psychiatric Association in 1955, with the addition of written contributions which for one reason or

another it was not convenient to include in the symposia. The publication is intended to "further constructive scientific exchange among the representatives of the many existing psychotherapeutic schools" and to "stand as a token of the continued efforts of the Section on Psychotherapy to offer a platform for unprejudiced oral and written presentation and comparison of data by representatives of all schools of psychotherapeutic thinking". The volume opens with an introduction on the history and philosophy of psychotherapy. Then follow a series of papers in groups. There are four papers on the principles of psychotherapy, 18 on schools of psychotherapy, and seven on present psychotherapeutic developments in European and South American countries. The concluding section is a summary of psychotherapy, present and future.

Books Received.

[The mention of a book in this column does not imply that no review will appear in a subsequent issue.]

"How to Live with Your Duodenal Ulcer", a Family Doctor Book by Robert Kemp, M.D., M.R.C.P.; 1956. London: The British Medical Association. 7½" x 5", pp. 111, with illustrations. Price: 8s. 6d.

This book is claimed to give a background to the subject; it provides diets, menus and recipes; and it is intended as a book of reference for the patient.

"How to Live with Your Rheumatism", a Family Doctor Book by Oswald Savage, O.B.E., M.R.C.P.; 1956. London: The British Medical Association. 7½" x 5", pp. 142, with illustrations. Price: 8s. 6d.

Rheumatism is talked about by most people at some time or other and many claim to have suffered from it. This is a practical book for the sufferer.

"How to Live with Your Nerves and Like It", a Family Doctor Book by Henry Harris, M.D., D.P.M.; 1956. London: The British Medical Association. 7½" x 5", pp. 144. Price: 8s. 6d.

One of several books recently published by *Family Doctor*, intended to help the ordinary person.

"An Atlas of Anatomy", by J. C. Bolleau Grant, M.C., M.B., Ch.B., F.R.C.S. (Edin.); Fourth Edition; 1956. Baltimore: The Williams and Wilkins Company. Sydney: Angus and Robertson, Limited. 11½" x 8¾", with 634 illustrations, many in colour. Price: £8 5s.

To the last edition, reviewed in this journal in March, 1953, eighty new illustrations have been added.

"Orthopedic Nursing", by Mary Powell, S.R.N., M.C.S.P., with a foreword by Sir Reginald Watson-Jones, B.Sc., M.Ch.Orth., F.R.C.S., F.R.C.S.E. (Hon.), F.R.A.C.S. (Hon.), F.A.C.S. (Hon.); Second Edition; 1956. Edinburgh and London: E. and S. Livingstone, Limited. 8¾" x 5¾", pp. 451, with illustrations. Price: 27s. 6d.

The first edition was reviewed in this journal in April, 1952.

"Lymphatics, Lymph and Lymphoid Tissue", by Joseph Mendel Yoffey, D.Sc., M.D. (Manchester), F.R.C.S. (England), and Frederick Colin Courtice, M.A., D.Phil. (Oxon.), D.Sc. (Sydney), (Hon.); Second Edition; 1956. London: Edward Arnold (Publishers), Limited. 9½" x 6", pp. 518, with illustrations. Price: 60s.

The first edition appeared in 1939; since then much new work has been done.

"A Manual of Human Anatomy", by J. T. Altken, M.D., G. Causey, M.B., F.R.C.S., J. Joseph, M.D., M.R.C.O.G., and J. Z. Young, M.A., F.R.S.; 1956. Edinburgh and London: E. and S. Livingstone, Limited. Volume I: "Thorax and Upper Limb." 8¾" x 5¾", pp. 180, with illustrations. Price: 14s. Volume II: "Head and Neck." 8¾" x 5¾", pp. 188, with illustrations. Price: 16s. Volume IV: "Lower Limb." 8¾" x 5¾", pp. 125, with illustrations. Price: 12s. 6d.

These are three of a series of five volumes intended to give the student of anatomy a method of dissecting the body and to guide him about the extent of knowledge expected of him in the second medical examination.

The Medical Journal of Australia

SATURDAY, JANUARY 26, 1957.

All articles submitted for publication in this journal should be typed with double or treble spacing. Carbon copies should not be sent. Authors are requested to avoid the use of abbreviations and not to underline either words or phrases.

References to articles and books should be carefully checked. In a reference the following information should be given: surname of author, initials of author, year, full title of article, name of journal, volume, number of first page of the article. The abbreviations used for the titles of journals are those adopted by the Quarterly Cumulative Index Medicus. If a reference is made to an abstract of a paper, the name of the original journal, together with that of the journal in which the abstract has appeared, should be given with full date in each instance.

Authors who are not accustomed to preparing drawings or photographic prints for reproduction are invited to seek the advice of the Editor.

CORTISONE IN THE MANAGEMENT OF ASTHMA.

THERE have been many reports on the use of cortisone in the treatment of asthma, but two recent reports published by the Medical Research Council¹ will be read with profit by all who have to face the clinical dilemma: cortisone or not? It is perhaps surprising that what could be regarded as a single report should appear in two quite separate parts, one dealing with chronic asthma and one with *status asthmaticus*. Obviously these investigations must be administratively distinct, but the conditions themselves have so much in common that it is difficult to know where to draw the line. The Medical Research Council reports do not in fact state where this line was drawn, although the patients in *status asthmaticus* were required to have failed to respond to twenty-four hours of routine treatment before they qualified for inclusion. It is also remarkable that no attempt is made to define asthma, except in so far as it is stated that the dyspnoea should "in the opinion of the physician, be due in large part to bronchial asthma", and that patients with severe bronchial infection were excluded. Perhaps this problem of definition would have seemed too much like twisting the knife in an old wound. The reports do comment on one of the difficulties in all studies on asthma—the lack of diagnostic precision owing to an incomplete knowledge of its causes. Nonetheless, except for data relating to the age of the

patients, the duration of asthma, the month of admission to the trial and the number of previous attacks of *status asthmaticus*, there is no information on the type of asthma treated. This, of course, does not mean that comparison of two treatments in groups of patients given one or the other at random is unreasonable or invalid, but merely that the sensitivity of the comparison may be reduced if one type of asthma behaves in a different way from another in response to either treatment.

In the series of patients with chronic asthma, of whom there were 96 in all, the notoriously difficult question of assessing progress was approached in three ways: by grading the severity of rhonchi, by grading the exercise tolerance (five questions were used similar to those introduced by C. M. Fletcher) and by recording the capacity for work. The plan of cortisone dosage, after an initial "loading" schedule, was to allow choice by the physician of an appropriate maintenance dose for the six months of the trial, a minimum of 25 milligrammes daily being laid down. In brief, it was found that by the end of a fortnight the patients treated with cortisone were faring significantly better than the controls, and that they maintained their lead for about two months. Thereafter, chiefly as a result of delayed improvement in the control group, the differences tended to disappear; at the end of the six months there was little to choose between the groups. On the data presented, both groups appear to have been better at this stage than on admission to the trial, although it is not easy to make allowance for the inevitable, though small, number of withdrawals at each assessment stage. At follow up three months after the withdrawal of cortisone or control tablets (it was difficult to wean some members of both groups) both series had tended to relapse, but there were no significant differences between them.

These results are not as easily interpreted as might at first appear. If the lack of difference at six months is due to improvement in the controls, and not to deterioration in the patients treated with cortisone, it follows that the latter group have had at least some benefit over six months which the others were largely denied. If, on the other hand, the lack of difference is attributed to a decreasing efficiency of cortisone, then these patients have had only a temporary initial benefit, which may in the long run have been barely worth while. On the evidence, the former conclusion appears the more reasonable; the Medical Research Council report records the first premise as a definite observation, but appears to favour the second conclusion. The report advances the argument that, as similar numbers of patients in the two groups wished to continue to take whatever tablets they had been receiving during the trial, cortisone was causing no specific benefit at this juncture. However, both groups deteriorated during this follow-up period. It appears possible that a complete cycle of exacerbation and remission was being witnessed in both groups (in the one facilitated by cortisone) over the nine months of the trial. A further six months of close observation might have determined this. So, too, might some simple test of pulmonary function, such as M. C. S. Kennedy and D. C. Thursby-Pelham² employed in their study of the effect of cortisone on asthma in children. Estimates of vital capacity were made, but only the results

¹ *Lancet*, October 20, 1956.

² *Brit. M. J.*, June 30, 1956.

at the beginning and end of treatment are recorded. These show no difference between the groups, and only a small increase on the initial values. At both these points the control and cortisone groups were also clinically comparable; a crucial observation, perhaps, would have been a difference in vital capacity at, say, two and eight weeks, when the cortisone group was clinically the more satisfactory. A subsequent fall in the cortisone group's mean vital capacity, or a rise in that of the control group, would have gone some way towards elucidating the problem of interpretation mentioned above. Despite the interpretative difficulties, no one would disagree with the conclusion that the effect of treatment with cortisone in chronic asthma is not as dramatic as in *status asthmaticus*; neither, of course, is the clinical condition.

The outstanding features of the trial of cortisone in *status asthmaticus* were two. First, the use of cortisone was unequivocally superior to routine methods in the group of patients studied. Second, the great majority of patients with *status asthmaticus* admitted to the 13 centres taking part in the investigation responded to routine treatment within twenty-four hours; as failure to respond in this period was a necessary criterion for inclusion in the trial, a total of only 32 patients made up the series. The value of cortisone was manifest in the speedy clinical response and in the smaller doses of antispasmodic drugs required in the succeeding few days. It was also seen in the rapid improvement of seven "failures" in the control group as soon as their treatment was changed to the use of cortisone (the experimental design naturally included this change immediately the physician requested it). What is disturbing about the management of these patients is that the relapse rate within three months was higher in those who had been given the fortnight's course of cortisone than in the control group treated by standard methods. Perhaps this is an indication for a rather longer course than this after *status asthmaticus*, or for one or two doses of ACTH when the administration of cortisone is stopped.

The Medical Research Council bears a heavy load of responsibility, for its results guide the therapeutic activities of a host of doctors, and of numerous chest physicians in particular. Its reports are characterized by their objectivity and by their attention to detail, just as its investigations have been. The present inevitably superficial summary of the reports on cortisone in the management of asthma is mildly provocative, in the hope that it will stimulate detailed study of two important reports which are, perhaps, less satisfying than some of their predecessors.

Current Comment.

CHRONIC LIVER DISEASE IN YOUNG WOMEN.

DESPIITE considerable advances during recent years in the understanding of liver function and disorder, much remains to be learnt, and many cases fail to fit into established patterns of liver disorder. In 1951 H. G. Kunkel *et alii*¹ reported to the forty-third annual meeting of the American Society for Clinical Investigation their observations on a group of young women who suffered from a

rather unusual form of cirrhosis of the liver. A striking feature of this condition was the high level of the γ globulin fraction of the serum, a level high enough to cause a rise in the total protein concentration of the serum. The onset of the disease was insidious, and the course was prolonged and either stationary or downhill. Frequently it was marked by periods of high fever, arthralgia and arthritis. Pathological study of the liver of nine patients showed a remarkable degree of plasma cell infiltration, reaching 30% to 40% of the nucleated interstitial cells. Plasmocytosis was not found in sternal marrow biopsy specimens; in the liver it diminished during the course of the disease. The aetiology of the syndrome was unknown.

In a recent paper, of which Kunkel is a co-author with A. G. Bearn and R. J. Slater,² it is stated that these patients in the 1951 report had been considered together because they exhibited certain clinical and biochemical characteristics, which were not ordinarily seen in cases of either classical post-hepatitis cirrhosis or Laennec's cirrhosis. Subsequent experience at the Rockefeller Hospital, New York, from which this and the earlier report have come, has revealed that the majority of young adults with evidence of severe hepatic cirrhosis, and in whom no alcoholic or nutritional aetiology was apparent, have also been women. Some of these patients have given a history suggestive of acute hepatitis, a few have been shown to be suffering from Wilson's disease, and occasionally other rare but recognizable disorders have been encountered. In the majority of cases, however, the aetiological agent responsible for the hepatic cirrhosis has remained obscure. In this recent report, Bearn, Kunkel and Slater present the results of a study of 26 such patients with hepatic cirrhosis. The patients included represent all the young adults with severe cirrhosis of the liver observed at the Rockefeller Hospital, with the exception of those for whose condition there were clearly discernible aetiological factors. Six patients have been excluded who had cirrhosis following classical well-defined acute infectious hepatitis; the clinical manifestations and biochemical findings of the cirrhosis which followed acute hepatitis in this group of patients were of the usual type and appeared to differ from those encountered in most of the group of patients discussed in the report. However, seven of the 26 patients considered in the report were included because, although a previous attack of atypical acute hepatitis appeared possible, they shared with other members of the group certain unusual features, not commonly encountered in classical post-hepatitis cirrhosis—for example, arthritis and amenorrhoea.

Further medical inquiry into the previous medical history of the remaining 19 patients was singularly unproductive. The onset of the illness was usually insidious, and was unheralded by any gastro-intestinal disturbances commonly met with in the early stages of acute hepatitis. It is emphasized that the decision whether or not to include certain persons within the main group proved at times very difficult, particularly because of the difficulties that exist in the diagnosis of acute viral hepatitis. It is possible that some of the patients had in fact acute infectious hepatitis, but this cannot be proved or disproved. The main features which differentiated the patients in this special group from those normally regarded as suffering from Laennec's cirrhosis were arthritis, obscure febrile episodes and occasionally hormonal disturbances. In some cases striking improvement followed the administration of cortisone. Laboratory investigations in the acute stages of the disease usually revealed an extremely high serum γ globulin content and an increase in the number of plasma cells of the liver.

Bearn, Kunkel and Slater point out that sporadic reports of patients with clinical syndromes similar to those of the present series have appeared in the literature. In most cases the aetiology was unknown. In others a history of acute infectious hepatitis was obtained, and the virus of infectious hepatitis was held responsible for the development of hepatic cirrhosis. In some cases it was assumed

¹ *J. Clin. Investigation*, June, 1951.

² *Am. J. Med.*, July, 1956.

that the patients had suffered from a cryptic form of acute hepatitis, which gave rise to chronic liver disease, but such an explanation has not always been regarded as satisfactory. Moreover, Bearn, Kunkel and Slater refer to recent studies by Zieve and others which suggest that the true incidence of hepatic cirrhosis following acute infectious hepatitis may be considerably less than was previously thought to be the case. Bearn, Kunkel and Slater state that the sex incidence of post-hepatitis cirrhosis in young adults has received relatively little notice in the past. It was to be anticipated that during and immediately after the last war most cases of post-hepatitis cirrhosis would occur in men. However, this apparent predominance in men may not exist under peacetime conditions and the sex incidence of the condition remains a controversial subject. With regard to arthralgia, another of the features of the present group, the incidence in patients suffering from post-hepatitis cirrhosis is uncertain, but it has not generally been noted as following chronic hepatitis. In answer to the possible suggestion that selection of cases may be held responsible for the high proportion of women suffering from cirrhosis of obscure aetiology observed at the clinic, Bearn, Kunkel and Slater state that special efforts were made during the period of the review to obtain patients with post-hepatitis cirrhosis from Veterans Hospitals, and these men in fact account for some of the cases in the present series. The true sex incidence of the disorder is just not determined and must await further experience based upon extended studies from general hospitals in different geographical areas.

Extreme hypergammaglobulinaemia is accepted as an uncommon, though well recognized, feature of some cases of cirrhosis unquestionably due to acute infectious hepatitis. Although this occurs in both sexes, many of the reported cases have been in young women. It is suggested that if one of the aetiological agents responsible for the condition under discussion is the virus of infectious hepatitis, specific endocrine influence present in young women may modify its morbid effects to such an extent that an unusual form of the disease may become manifest. It is further pointed out that the sex incidence, the generalized nature of the disease in certain persons and the involvement of joints, pericardium and lungs as well as liver all raise the possibility that some other disorder, possibly related to the collagen diseases, may play an important part in the disease process in some instances. The finding of typical L.E. cells in the blood of one patient and the prompt alleviation of many of the signs and symptoms of the acute generalized episodes by the administration of cortisone may give some support to this concept. R. A. Joske and W. E. King, of Melbourne, have reported the apparent presence of L.E. cells in the blood of two patients suffering from active chronic viral hepatitis. Further studies of the L.E. phenomenon in the acute febrile stages of the disease are clearly indicated.

This is an interesting study, provocative of thought. Bearn, Kunkel and Slater consider that, despite the heterogeneous nature of the disease process in the group of patients studied, there appear to be sufficient similarities within the group to warrant their consideration together. At the same time certain essential details of the picture remain hidden. What is known has been set out with care. The supply of a few key pieces should give a full and perhaps unexpected picture.

RAYON MESH DRESSING AFTER SKIN GRAFTING AND FOR GRANULATING WOUNDS.

The provision of a suitable dressing for use after skin grafting and in the treatment of granulating wounds presents problems of its own, but, according to Patrick C. Shea, junior, William A. Reid and Albert H. Wilkinson, junior,¹ rayon mesh has certain virtues in this field. They point out that the most important prerequisites for satis-

factory wound healing are the prevention of the accumulation of blood, serum or other liquid materials, proper coaptation of the wound edges and the avoidance of infection. These factors apply particularly to cases involving a great deal of reconstruction, such as the repair of granulating areas resulting from burns and chronic leg ulcers. In their experience, the use of a non-adherent dressing of rayon mesh, according to a technique which they describe, has produced the most favourable results. This non-adherent dressing consists of a continuous rayon filament knit into a fabric which has dimensional stability lengthwise for easy handling and is distensible, crosswise and on the bias, for conformability. Its mesh permits rapid drainage of the wound exudate into the secondary dressing, and thereby precludes maceration. The emulsion impregnant does not block the open mesh of the fabric, but is confined to the threads, rendering them non-adherent. At the same time, the composition is such that it encourages transfer of the exudate to the overlying absorbent dressing. The impregnant is neither heavy nor greasy. Shea and his colleagues describe the technique which they used and the results of their work. After split-skin grafting, either in sheet or in postage stamp form, one thickness of the mesh was overlaid smoothly and compressed firmly. The edges were sutured at intervals of half to three-quarters of an inch, with fine silk, preferably into normal skin. Dry dressings were then superimposed, consisting of fluffed-out gauze with other gauze dressings. This method was used in the treatment of 17 patients with a minimum of 95% "take" in every instance. For other patients suffering from chronic leg ulcers and other large granulating wounds, the mesh was used as the initial dressing. In these cases both objective and subjective observations are described as gratifying. The dressings could be changed without pain to the patient, infection appeared to be less, no maceration occurred, and epithelialization was not interfered with. Shea *et alii* state that, although techniques for suturing dressings in place have been described and used by other surgeons, especially in plastic and reconstructive surgery, their merits have failed to produce the popularity they deserve amongst surgeons generally. It is suggested that the use of rayon mesh will overcome the difficulties and gain the advantages associated with this type of dressing. A wider trial seems likely to be worth while.

REACTIONS TO CHLORAL HYDRATE.

REACTIONS to chloral hydrate are so infrequent that the drug is not listed in some text-books on allergy and dermatology, nor is it mentioned in articles on eruptions due to drug therapy. Nevertheless, H. B. Christianson and H. O. Perry² report seven cases of allergic reactions to chloral hydrate, as well as two additional cases in which a peculiar somnambulistic type of reaction occurred, and a review of the literature reveals undesirable reactions to chloral hydrate in surprising variety and number. In the first case described by Christianson and Perry a generalized scarlatiniform eruption, followed by exfoliation, fever and signs of toxicity, developed after the fourth dose of chloral hydrate taken in the course of treatment for preexisting dermatitis. A decubitus ulcer also formed over the scrotum. After withdrawal of the drug the patient very promptly recovered. In the second case described the patient had psoriatic erythroderma and an allergic background, a generalized scarlatiniform eruption with fever and signs of toxicity followed by exudation and exfoliation, which developed after one dose of chloral hydrate had been given. The patient promptly recovered after administration of the drug was discontinued. Chloral hydrate had been taken previously without an allergic reaction. In the third case the patient, who had an allergic background, was admitted to hospital for treatment of *dermatitis venenata*. A generalized scarlatiniform eruption followed by exfoliation developed after the adminis-

¹ *Surg., Gynec. & Obst.*, August, 1956.

² *Arch. Dermat.*, September, 1956.

tration of chloral hydrate. Eczematous dermatitis of the face also occurred. When administration of the drug was suspended, rapid recovery occurred. The patient had previously taken chloral hydrate without reaction. In the fourth case generalized dermatitis had occurred after ingestion of one tablet of chlorbutanol in 1932. After administration of chloral hydrate in 1951 a generalized scarlatiniform eruption developed with exfoliation, vesicular eruption of the lips and purpuric eruption. Two years later she had a similar rash after administration of chloral hydrate. This case demonstrates the "cross-sensitization phenomenon". We need not recapitulate here the details of the authors' other cases or of those they found in the literature. Summed up, the commonest dermatological manifestations of hypersensitivity to chloral hydrate, like those of most other drugs, are erythema, exanthemata, urticaria and eczematoid dermatitis. The eruption usually begins on the face and back, and subsequently spreads to the neck, chest and arms. The pharmacology, toxicology and a classification of the cutaneous eruptions due to chloral hydrate are set out by Christianson and Perry for those who wish to pursue the subject further. For practical purposes it is sufficient that they have drawn attention to neglected facts about a useful drug, which loses nothing in usefulness by being administered with intelligence and care. Incidentally, it is interesting to learn that, though addiction to chloral hydrate is rare, it had one famous devotee, the poet and painter Dante Gabriel Rossetti, who took as much as 180 grains of chloral hydrate each night.

SILAGE GAS POISONING.

For many years instances have been reported of the death of men while they were working in silos. The deaths have been due to inhalation of gases produced during the fermentation of the silage. Carbon dioxide has been incriminated as the gas responsible for the deaths. Thus, in the *Agricultural Gazette of New South Wales* of July, 1939, there is an article giving instructions on how to prevent noxious gases from accumulating in silos, and carbon dioxide is the gas mentioned. It is suggested that a guinea-pig or a fowl should be lowered into the silo and not a lighted candle, for sometimes the gases are inflammable, being evidently hydrogen and methane. Oxides of nitrogen are not mentioned. Numerous reports from other parts of the world follow similar lines. R. R. Grayson¹ has described two cases of silage gas poisoning, one of them fatal, in which oxides of nitrogen were found to be the noxious agents. L. T. Delaney, junior, H. W. Schmidt and C. F. Stroebel² have also described two cases of poisoning due to nitrogen oxides in silage gases. The condition produced by the inhalation of oxides of nitrogen is a diffuse type of chemical bronchopneumonia caused by the action of nitrous and nitric acid on the mucosa of the respiratory tree. This condition has been described on many occasions as following inhalation of oxides of nitrogen or nitric and nitrous acid fumes in industry. The severity of the condition depends on the amount of gas or acid fumes inhaled. The nitrogen oxides produced in silos come from the fermentative reduction of potassium nitrate, which may be present in relatively large amount in the plant material placed in the silo. The principal toxic nitrogen oxide produced is nitrogen dioxide, which is a red gas and very irritating. It is probable that many of the cases of silage gas poisoning are due to carbon dioxide, which is produced in large amounts during fermentation of the plant material. Under certain conditions, such as a dry growing season, plant material such as maize may contain a high percentage of potassium nitrate. Many deaths have been described from nitrate poisoning in cattle from the consumption of silage made from such plant material. In 1938-1939 Finnemore and

Cooper³ found that at certain stages in its growth the variegated thistle, *Silbum Marianum*, contained 12% or more of potassium nitrate, and when this material was fed to sheep death followed quickly from nitrate poisoning. The cause of death was conversion of haemoglobin to methaemoglobin. A very large number of deaths of stock, particularly cattle, have been reported in New South Wales from the consumption of the thistle. The bronchopneumonia in man from the inhalation of nitrogen oxides in silo gases is probably not uncommon, and the condition should be noted by country practitioners in areas where silos are used. No specific treatment can be recommended.

ALUMINIUM HYDROXIDE AND RECURRENT RENAL CALCULI.

Over a decade ago E. Shorr⁴ published a paper on the possible usefulness of estrogens and aluminium hydroxide gels in the management of renal calculi. Five years later Shorr and A. C. Carter⁵ described their further experience with aluminium hydroxide gels in this field. Discussing the rationale of the method, they stated that reduction of the urinary phosphate excretion should serve to prevent the precipitation of the relatively insoluble phosphate ion as the calcium, magnesium or ammonium salt. They investigated the usefulness of aluminium hydroxide gels for this purpose in a series of 22 patients receiving a diet of constant, moderately low phosphorus content. Therapy was continued for periods of two to seven years. A variety of aluminium gel preparations were used, of which basic aluminium carbonate gel ("Basaljel") proved the most efficient in reducing urinary phosphorus excretion. The amounts of aluminium gel used were well tolerated and without harmful effects. The details of the treatment were given in the article, in relation to both aluminium gel and diet; emphasis was placed on the importance of twenty-four-hour urinary analyses for phosphorus in the control of the procedure. Shorr and Carter discussed mechanisms leading to the reduction of urinary phosphorus excretion by aluminium gels, and pointed out that, unlike acidifying agents, aluminium gels were not limited in their effectiveness in the presence of urinary tract infection with ammonia-forming organisms; nor did they introduce the hazard of acidosis when renal function was impaired. The therapeutic results in Shorr and Carter's series of 22 cases were regarded by them as highly favourable in the light of the facts, first, that there was no recurrence in six kidneys which were the sites of previous stone formation and, second, that of 30 kidneys with stones *in situ* the stones disappeared completely from four, decreased in three, showed no change in 20 and increased slightly in three.

This work of Shorr, Carter and others in New York attracted the attention of a British group, L. N. Pyrah, F. P. Raper and I. B. Smith,⁶ who, in the absence of reports on the method published in Britain, set out to investigate it for themselves. When it was found that the standard preparations of aluminium, in reasonable doses, did not sufficiently reduce the amount of urinary phosphates, they asked a British firm to manufacture a new preparation, modified according to the recommendations of Shorr and Carter (1950). This preparation, called "Hyalgel", has been tested and found effective in reducing the concentration and daily output of urinary phosphates sufficiently to prevent calculus recurrence. Twenty-six kidneys were concerned in the study, and nearly all had shown recurrence after previous removal of calculi. All these kidneys were still free of calculus at the time of publication of the report. Pyrah, Raper and Smith state that all traces of stone must have been removed at operation, and the regime should be instituted very soon after the operation. Naturally, persistent infection must be

¹ *Ann. Int. Med.*, September, 1956.

² *Proc. Staff Meet. Mayo Clin.*, April, 1956.

³ "The Poison Plants of N.S.W.", 1942.

⁴ *J. Urol.*, April, 1945.

⁵ *J.A.M.A.*, December 30, 1950.

⁶ *Brit. J. Urol.*, September, 1956.

removed before the aluminium regime is commenced, and concurrently with the long-range aluminium plan there must be a reduced intake of phosphorus in the food. "Hyalgel" (or, failing this, "Aludrox") is best given in one ounce doses, with meals, preferably four times a day—that is, about 120 millilitres of the medicine per day. The drug is given with meals to allow maximum time of admixture with the food, the basic principle being that aluminium hydroxide reacts with the phosphates in the food, precipitating them as the highly insoluble aluminium phosphate. Most of the phosphorus ingested is therefore not absorbed and excreted by the kidneys, but leaves the body by the bowel. Pyrah, Raper and Smith admit that, since the average duration in this series is a little less than one year, the results are not so far of great significance. However, they are of great interest when taken in conjunction with the results reported by Shorr and Carter; these, though only moderately successful, were observed over periods of up to seven years.

POST-GRADUATE WORK IN THE UNITED KINGDOM.

THE Empire Medical Advisory Bureau in London has sent us the latest copy of their "Summary of Regulations for Postgraduate Diplomas and of Courses of Instruction in Postgraduate Medicine". This is a comprehensive publication containing practically all that needs to be known by medical practitioners preparing to go to the United Kingdom to study. A copy is normally available for perusal at the offices of the Branches of the British Medical Association in the several States. Medical graduates going overseas are strongly advised to write, as long as possible before they leave Australia, to the Director, Empire Medical Advisory Bureau, British Medical Association House, Tavistock Square, London, W.C.1; he will be found a mine of information and helpfulness to the doctor from overseas.

SULPHONAMIDES TODAY.

SULPHONAMIDES have been pushed into the therapeutic background by the more spectacular antibiotics and probably are too seldom used today. Many clinicians may have forgotten and their younger colleagues may never have known the seemingly miraculous effect of the first sulphonamides introduced in the middle and late thirties. It was a thrilling experience then to see the sullen red edge of a patch of erysipelas, moving relentlessly across the face of a baby, suddenly halt and retreat under the influence of sulphanilamide like a bushfire when the wind changes; or to watch sulphapyridine turn the classical text-book descriptions of lobar pneumonia into historical writings. Then came penicillin and all the mycins and a generation that knew not "Prontosil". This has meant that the virtues of the sulphonamides are now often overlooked, and it is important to have their present position in medicine assessed, as John C. Krantz, junior,¹ has done. It should be realized that work on finding better sulphonamides with fewer side-effects than the earlier drugs has been going on with a good deal of success, and, as Krantz states, the sulphonamides still occupy an enviable position in the treatment of infectious disease. Krantz divides modern sulphonamide therapy into two main forms: one involves the use of a triple sulphonamide, the other sulphisoxazole, which does not contain the pyrimidine nucleus. At the same time other single forms are still used, such as sulphadimethine. Recently sulphisoxazole has been made as its N'-acetyl derivative; this has the real advantage of being insoluble and tasteless, but is broken down in the body to sulphisoxazole. Krantz points out that about 14% of the infectious diseases encountered in temperate climates can be treated with a sulphonamide,

and he offers an impressive list of conditions in which the sulphonamide drugs are wholly or partially effective. They may be given profitably with penicillin or iodides for actinomycosis, with penicillin for pneumococcal meningitis, with chloramphenicol or streptomycin for infections due to *Haemophilus influenzae*, with tetracycline or streptomycin for Friedländer's pneumonia and so on. The newer sulphonamides have less disadvantages than their predecessors, and score over certain of the antibiotics in such complications as gastro-intestinal symptoms and superinfection. By no means the least of their advantages is the attendant low cost of therapy as compared with the cost of broad-spectrum antibiotics. The doctor about to write a prescription for an antibiotic will do well to ask himself if a sulphonamide may not be cheaper, just as effective and perhaps safer.

CUSHING'S DISEASE: ITS RADIOLOGICAL FINDINGS.

CUSHING'S DISEASE is a bizarre and as yet poorly understood entity of complicated background, but is said to be due to hyperadrenocorticism resulting from pituitary basophilism, adrenal cortical hyperplasia, adenoma or carcinoma. It is believed that the changes in bone are the result of a disturbance of protein metabolism leading to insufficient tissue repair and to lack of bony matrix formation and calcium deposition, resulting in osteoporosis. According to C. C. Wang and Laurence L. Robbins,¹ the significant radiological findings can be arbitrarily divided into two categories: changes in bones and changes in soft tissues. These changes appear to be closely related to the severity and duration of the disease. Changes in bones involve the entire skeleton. The basic process is generalized osteoporosis, particularly evident in the skull, spine, ribs, pelvis and, to a lesser extent, the extremities, with attendant fractures and their complications. In the skull the appearances vary from normal to an extremely unusual stippled osteoporosis. It has been recognized that the pituitary basophilic adenomata are usually small and do not cause significant pressure on the surrounding structures. In all cases examined, the *sella turcica* appeared normal in size. Over and above those soft-tissue changes clinically evident, certain others may be demonstrated radiologically. Probably the most common, and one almost universally found in Cushing's disease, is enlargement of the heart associated with hypertension. The manifestations of osteoporosis in Cushing's disease present problems of differential diagnosis, particularly those of hyperparathyroidism, post-menopausal osteoporosis, osteomalacia and diffuse malignant involvement of bone. In hyperparathyroidism there is generalized decalcification with or without cyst formation in the entire skeleton. Skiagrams of the hands and feet show no evidence of subperiosteal bone resorption, which is not uncommonly seen in hyperfunction of parathyroids. In Cushing's disease the frequent involvement of the skull is helpful in differentiation from post-menopausal osteoporosis, which is known to have a predilection for the spine, pelvis and, to a less degree, the extremities, while the skull is not significantly affected. Also, the age of the patient in post-menopausal osteoporosis is often quite different from that in the group with Cushing's disease, which usually occurs in relatively younger individuals. The "cotton-wool" appearance of the callus of fractured ribs is more common in Cushing's disease than in other conditions. In osteomalacia pseudo-fractures or true fractures do not produce much visible callus before the patient is treated medically. Partial or complete loss of *lamina dura* is not diagnostic of Cushing's disease or hyperparathyroidism. It may occur in severe osteoporosis of variable aetiology or in osteomalacia. Although not pathognomonic, unusual distribution of fatty tissues in the trunk with sparing of the extremities, cardiomegaly, premature vascular calcification and adrenal enlargement should be considered as probable manifestations of Cushing's disease.

¹ Internat. Rev. Med., September, 1956.

¹ Radiology, July, 1956.

Abstracts from Medical Literature.

BACTERIOLOGY AND IMMUNOLOGY.

Antibody Titre to Poliomyelitis Virus.

J. S. YOUNGNER AND J. E. SALK (*Am. J. Hyg.*, March, 1956) have studied the antibody titre for seven different type I strains of poliomyelitis virus in children vaccinated with the Mahoney strain. The subjects were aged six to thirteen years and were bled and inoculated with one dose of the 1954 formalin-inactivated trivalent vaccine with the Mahoney strain as type I component. They were bled again two weeks later and the sera tested for neutralizing antibody in tissue culture of monkey kidney cells dispersed by trypsin. The results showed that the levels of antibody measured by seven different strains of virus were indistinguishable by other type I strains, thus establishing the homogeneity of immunological activity within the serological type. Sera without demonstrable antibody against type Mahoney before vaccination also failed to neutralize other type I virus strains.

Conjunctivitis and A.P.C. Virus.

T. A. COCKBURN, W. P. ROWE AND R. J. HUEBNER (*Am. J. Hyg.*, May, 1956) have studied the relationship of the 1951 Greeley Colorado outbreak of conjunctivitis and pharyngitis to type III A.P.C. virus infection. This epidemic and similar ones in the same year were studied with the aid of animal and chick embryo inoculations, but not by tissue culture methods, so that the A.P.C. virus would not have been recovered. Paired sera from some of the representative subjects had been stored frozen since 1951, and these were tested for complement-fixing antibody to type III A.P.C. virus, and for neutralizing antibody to types I, III and IV A.P.C. The complement-fixing antibodies were in low titre in all first specimens, and rises of fourfold or greater were present in all specimens. A rise in neutralizing antibody to type III virus was also demonstrated, and this persisted in two patients for as long as forty-one months. It was concluded that the 1951 Greeley outbreak was due to type III A.P.C. virus.

Antibody and Gamma Globulin in Hematopoietic Organs.

G. J. THORBECKE AND F. J. KEUNING (*J. Infect. Dis.*, March-April, 1956) have compared antibody and γ -globulin formation *in vitro* in hematopoietic organs. In previous experiments the greatest amount of antibody was found to be formed in the red pulp of the spleen. It is known that in diseases with a high plasma cell level in the blood the level of γ -globulin is also high, and these probably are immune globulins. Experiments were designed to prepare tissue cultures from various organs of immunized rabbits, and an aliquot was

ground, frozen and thawed to lyse the cells, and stored. Antibody and γ -globulin titrations were then made on the cell extracts and the tissue cultures after twenty-eight hours' incubation in roller tubes. Histological sections were also prepared and stained with pyronin and methyl green. Examination of the sections showed a marked formation of plasma cells in the red pulp of the spleen during immunization. No antibody was found in the liver, though in a small series in which splenectomy had been performed an increase of lymphocytes in periportal areas did parallel a slight increase in antibody. Cultures from bone marrow, however, showed increase in antibody up to five-fold, and an increase in γ -globulin up to three-fold; while cultures from splenic tissue increased up to eleven-fold in antibody and five-fold in γ -globulin. In non-immunized control animals no γ -globulin formation could be detected. The authors discuss the significance of the findings and suggest that all γ -globulins may be in the nature of an immune response.

Growth of *Endamoeba histolytica*.

MITSURU NAKAMURA AND E. E. BAKER (*Am. J. Hyg.*, July, 1956) have studied the nutritional requirements of *Endamoeba histolytica*. They used egg slants overlaid with horse-serum Ringer solution, glucose, thioglycollate, rice powder and antibiotics. Killed bacteria were also added. The tubes were sealed with vaseline inoculated with approximately 10 to 15 amoebae and incubated at 37° C. for three or four days. Then an aliquot was taken and a count made. Substances which stimulated multiplication were yeast dialysate and bacterial cells treated by one of several methods. Then purified substances of the nature of nucleic acid or its components, and vitamins, cytochromes and bacteria lysed in different ways all possessed growth-stimulating powers. The authors discuss the part played by these substances in the multiplication of the amoeba and its apparent inability to synthesize protoplasm from simple food sources, hence its dependence on bacteria as a source of food.

Resistance to Infection and Properdin Levels.

M. LANDY AND LOUIS PILLEMER (*J. Exper. Med.*, September, 1956) have studied increased resistance to infection following administration of bacterial lipopolysaccharides in white mice. The polysaccharides were prepared from both rough and smooth cultures of various Gram-negative bacteria and injected intraperitoneally, and twenty-four hours later the animals were challenged with six LD₅₀ doses of *Salmonella typhi*. Mice surviving the challenge were exsanguinated, and properdin levels were estimated in their serum and compared with those in control untreated groups. It was shown that the injection of lipopolysaccharides evoked a rapidly developing rise in resistance to infection, and this was accompanied by a rise in properdin titre; the response was related directly to the quantity and timing of the lipopolysaccharide injected. In control animals the titres declined and

the animals died. The authors discuss the mechanism of this process and point out that increase in ability to cope with Gram-negative bacterial infections may be concerned with stimulation of other defence mechanisms than the properdin system.

Bacteremia.

D. E. ROGERS (*J. Exper. Med.*, June, 1956) began his studies on bacteremia by observing mechanisms relating to persistence of bacteremia in rabbits following the intravenous injection of staphylococci. The avidity of leucocytes in the phagocytosis of staphylococci *in vitro* had previously been noted, and the survival of the staphylococci within the leucocytes had also been noted. In the living rabbit, however, the clearance of organisms from the blood-stream after an inoculation of large numbers slowed down abruptly after ten to fifteen minutes, and a persistent low-grade bacteremia resulted which could not be explained by known mechanisms of saturation of clearance. Careful techniques were evolved in order to study organisms in the circulating blood by catheterization of the superior vena cava, by plating of freshly diluted blood, and by plating of the supernatant of the centrifugal diluted blood in order to gain an idea of viable organisms contained within leucocytes. During the first ten minutes after inoculation into the marginal ear vein of 3 to 5 × 10⁸ mice, 40% of organisms per minute were removed. After fifteen hours the slowed rate had reached a minimum, but the blood was never cleared of organisms. Hepatic blood sampling showed that 70% to 80% of the organisms were trapped in the liver. A second injection of the same amount produced the same train of events. Then an experiment was designed to present a much smaller number of organisms to the splanchnic cells, and in this experiment a similar curve of partial clearance was obtained. The differential counts suggested that over 90% of the injected staphylococci were associated with leucocytes. When staphylococci were injected into animals rendered granulopenic, the fall was slower, and the blood was never free of organisms, but almost 80% of them remained free in the plasma. Finally a technique to prepare "intracellular staphylococci" for injection into another animal showed that while the organisms were trapped within the splanchnic area very rapidly, the number of organisms demonstrable in the peripheral blood remained higher than when free organisms were injected. The author believes that viable intracellular organisms are responsible for the persistence of staphylococcal bacteremia in rabbits.

Non-Specific Immunity in Laboratory Animals.

D. ROWLEY (*Brit. J. Exper. Path.*, June, 1956) has observed rapidly induced changes in the levels of non-specific immunity in laboratory animals after the injection of Gram-negative bacterial cell walls. He used mice, and found that immediately after intraperitoneal injection of the cell wall material, the animals rapidly succumbed; but within

twenty-four hours a state of resistance developed, which persisted about one week. The active material in the cell wall was shown to be lipopolysaccharide, and after injection of it, the animals' serum showed a decrease followed by an increase of bactericidal power. The author discusses the similarity between these occurrences and those associated with changes in properdin levels.

HYGIENE.

Uranium Poisoning.

H. C. HODGE (*Arch. Indust. Hyg.*, July, 1956) describes the effects produced when uranium is introduced into the body. Given into the blood-stream, it rapidly leaves the blood. Forty minutes after an intravenous dose is given, a quarter to a third has been deposited in the skeleton, nearly half has been excreted in the urine, approximately half of the remainder is in the kidney, and the rest is in other soft tissues. Only a trace remains in the blood. Once absorbed, uranium is carried partly as a protein complex and partly as a bicarbonate complex. In the bone uranium is deposited principally on the surface of the mineral crystals by exchange with calcium. The kidney is the sole site of the characteristic histological injury. Uranium kills cells by blocking carbohydrate metabolism; apparently it specifically inhibits hexokinase in the cell surface. It is one of the most toxic elements, but it is absorbed into the body only with difficulty. The author considers that the toxic effects of uranium on the kidney would be fatal long before enough had been absorbed to constitute a hazard because of its radioactivity, but he suggests the possibility that insoluble uranium compounds are inhaled and built up to a sufficient amount in the lungs to produce more than the tissue tolerance dose of radioactivity.

Chronic Bronchitis, Emphysema and Bronchial Spasm in Bituminous Coal Workers.

J. PEMBERTON (*Arch. Indust. Hyg.*, June, 1956) has compared the incidence of chronic bronchitis, emphysema and bronchial spasm in a group of 242 bituminous coal miners with the incidence of the same diseases in two other groups of non-mining industrial workers; these were 238 industrial workers in a rural area and 131 employees in a large engineering plant. The incidence of chronic bronchitis, emphysema and bronchial spasm was very much higher in the coal workers than in the other two groups. Evidence is presented indicating that this high incidence was occupational in origin. There was a lack of correlation between the radiological assessment of pneumonokoniosis and the incidence of chronic bronchitis, emphysema and bronchial spasm. The reactions of the host to the inhalation of dust in the lungs appear to determine the development of symptoms and the degree of respiratory disability. The author concludes that pneumonokoniosis in bituminous coal workers when diagnosed solely on the basis of a chest skiagram cannot be regarded as a clinical disease. When signs and symptoms of chronic

respiratory disease occur in bituminous coal workers, these are due usually to chronic bronchitis, emphysema and bronchial spasm or, much less often, to pulmonary tuberculosis. For these reasons the author suggests that it would probably be more equitable to link industrial compensation to evidence of disability obtained from the clinical examination and from respiratory-function tests than to the results of a radiological examination.

Why People Seek Diagnostic X-Ray Examinations.

G. HOCKBAUM (*Pub. Health Rep.*, April, 1956) has interviewed a random population sample of 1200 persons to determine the feelings and attitudes that prompted people to undergo diagnostic X-ray examination. Of the people interviewed, 42% had voluntarily and without any signs or symptoms of illness had one or more X-ray examinations. Another 16% had done so because they thought they might have tuberculosis. About 14% had undergone X-ray examination because this was required for some purpose, or because they had been urged to do so by others. About 17% had never had an X-ray examination, and 10% had had an examination for no reason at all. Three of many factors involved in why people do or do not have X-ray examinations appeared to be significant. The first was a conviction that tuberculosis could be contracted. The second was a belief that tuberculosis could be contracted without the appearance of any signs and symptoms, and that X-ray examination was the only means of determining the presence of tuberculosis in its early stages. The third was a belief that the problems associated with having tuberculosis would be less if the diagnosis was made in the early stages. To be of real value it is stressed that these findings must be tested in actual practice under controlled conditions.

Absence from School.

B. R. NISBET (*Med. Officer*, August 3, 1956) collected details of absence from school of children in the five to seven years age group. A total of 2068 children were in the survey. Most of the information collected came from teachers, but a certain amount came from health visitors after visits to the homes. About 25% of absences resulting from medical causes were due to the common infectious diseases. Of the non-medical absences, 37% were due to holidays with parents. The greatest number of absences occurred in the spring term and were due mainly to the high incidence of the common infectious diseases then. The duration of 47% of medical absences and 75% of non-medical absences was a day or less. Approximately 9% of medical absences and less than 2% of non-medical absences lasted for two or more weeks. There was a positive correlation between medical and non-medical absence. There was no clear relation between medical incapacity and social class, but, in non-medical incapacity, there was a small but consistent increase with descent of social scale. Though it is not shown statistically in this survey, because children in the lower social classes may not be kept away

from school with illnesses to the same extent as those in upper social classes, the author considers that there is more illness in children of lower social classes.

Lead Hazard in Boiler Cleaning.

R. J. SHERWOOD AND J. BEDFORD (*Arch. Indust. Hyg.*, July, 1956) describe an investigation of boiler-cleaning operations, during which men are exposed to massive dust concentrations. It was found that the ash from creosote-pitch fuel contained about 5% of lead, and that the average concentration of lead in the urine of cleaners rose from 0.04 milligramme per litre before cleaning began to 0.14 milligramme seven days after cleaning commenced. It was considered that those results indicated distinct, though not dangerous lead absorption. Even when approved filter respirators were worn, lead was present in the urine of the men, and for this reason the use of supplied-air respirators is advocated. The correct fit of these should be tested periodically. The authors found that for reliable estimation of lead excretion twenty-four-hour specimens of urine were essential. Contamination of urine specimens can readily be detected by analysing the contents of separate night and day flasks.

Smoked Fish as a Vehicle of Salmonellosis.

I. OLITZKY, A. M. PERRI, M. A. SHIFFMAN AND M. WERRIN (*Pub. Health Rep.*, August, 1956) have investigated three outbreaks in Philadelphia in 1955 of salmonellosis in which smoked fish products served as vehicles for the transmission of *Salmonella newport* from carrier to susceptible consumer. Eleven adults and four children were made ill directly by consumption of the food, and one adult was made ill through secondary infection. The chain of events leading up to these outbreaks was the failure of a hospital clinic to prepare a culture from a stool specimen from a patient with gastro-intestinal symptoms, followed by the failure of a food-processing plant to provide adequate sanitary facilities for its personnel and the failure of retail outlets to refrigerate a highly perishable food item.

Respiratory Protective Masks.

H. G. GUYTON AND F. T. LENSE (*Arch. Indust. Health*, September, 1956) describe sensitive methods for determining the efficiency of respiratory protective masks and their component parts against air-borne biological particulates. They state that representative types of contagion masks and dust and paint respirators which were evaluated provide inadequate protection against pathogenic aerosols whose particle size is in the 1 μ to 5 μ range. Industrial special-purpose masks appear to be more efficient than the previously mentioned group of masks. An aerosol with a concentration of between 3.0×10^5 and 4.0×10^5 spores of *Bacillus subtilis* var. *niger* per litre was used as the test material. The authors consider that a means of evaluating masks is necessary to ensure against potential leakage, and this, if used, should result in an improvement in the overall efficiency of respiratory protective equipment.

Public Health.

ROUTINE ACTIVE IMMUNIZATION OF THE CHILD AGAINST DIPHTHERIA, PERTUSSIS AND TETANUS.

THE following recommendations relating to routine active immunization of the child against diphtheria, pertussis and tetanus have been prepared by the Institute of Child Health, Sydney.

It is recommended that all infants should be immunized against diphtheria, pertussis and tetanus by means of injections of combined alum or aluminium phosphate precipitated or aluminium hydroxide diphtheria and tetanus toxoids containing *Haemophilus pertussis* vaccine (so-called "triple antigen").

Age.

This immunization should commence at about two or three months of age.

Intervals.

The initial course should consist of three deep subcutaneous or intramuscular injections of "triple antigen" given at intervals of not less than one month. It is also recommended that a fourth dose of "triple antigen" should be injected about twelve months after the third dose (that is, at about sixteen to eighteen months of age).

Dosage.

The actual dose of "triple antigen" and of other antigens varies with the particular preparation used, and for this reason it is most important to read package labels and leaflets before the administration of any of these biological products.

Routine "Booster" Injections.

(1) A child who has received three injections of "triple antigen" (diphtheria and tetanus toxoids, with pertussis vaccine) during early infancy and an additional injection of this preparation at or about eighteen months should be given a "booster" injection of combined diphtheria and tetanus toxoid at four years of age to ensure a high level

of immunity during early school years. (ii) "Booster" injections of this combined diphtheria-tetanus toxoid should also be given at eight and twelve years of age (that is, at four-year intervals).

Comments.—(i) Routine "booster" doses of *H. pertussis* vaccine are probably unnecessary after eighteen months of age, as exposure to the disease through contact with infected infants and children "boosts" the immunity of those who have received immunizing injections earlier in life. (ii) A child who has been immunized during infancy with a single antigen such as diphtheria toxoid alone and is later given an injection of "triple antigen" may respond so actively to the diphtheria antigen in this preparation that the primary responses to the tetanus toxoid and to the pertussis vaccine may be suppressed. For this reason a child of early school age who has previously been immunized against diphtheria alone or against diphtheria and pertussis but not against tetanus should first be given a "booster" dose of diphtheria toxoid alone and then immunized against tetanus.

Contraindications.

Routine immunizing injections should be temporarily deferred if the infant has any type of acute infection and during an epidemic of poliomyelitis in a community. Prolonging the intervals between immunizing injections for several months does not appear to alter the final degree of immunity.

Records.

It is most important that the parent or guardian of every child who is actively immunized should hold a written record of this and of other forms of immunization. Appropriate cards for recording details of immunization may be obtained from the Australasian Medical Publishing Company, Limited, Seamer Street, Glebe, New South Wales.

CONSUMPTION OF PETHIDINE AND MORPHINE.

At a recent meeting of the joint British Medical Association/Commonwealth Committee on Pethidine, members considered a statement (Table I) on the consumption of pethidine and morphine in the principal consuming countries

TABLE I.

Pethidine and Morphine: Consumption by Principal Consuming Countries in 1953¹ in Order of Consumption Rate per Million of Population.

Pethidine. (Kilograms of Basic Drug.)			Morphine. (Kilograms of Basic Drug.)		
Country.	Consumption.		Country.	Consumption.	
	Total.	Per Million of Population.		Total.	Per Million of Population.
Australia	463	53.53	Norway	86	25.85
New Zealand	102	51.13	Denmark	87	19.82
Iceland	7	47.3	United Kingdom	807	15.84
Denmark	196	44.65	Australia	134	15.49
U.S.A.	6695	41.61	Iceland	2	13.51
Canada	238	20.65	Hungary	109	11.52
United Kingdom	985	19.34	New Zealand	17	8.52
Norway	43	12.92	U.S.A.	1172	7.32
Ireland	38	12.89	Sweden	51	7.16
Germany	516	10.19	Switzerland	34	7.04
Italy	475	10.13	Czechoslovakia	86	6.97
Union of South Africa	126	9.76	Luxemburg	2	6.84
Switzerland	43	8.9	Belgium	50	5.74
Guatemala	17	5.79	Finland	23	5.62
Belgium	49	5.63	Canada	77	5.34
France	280	4.85	Ireland	15	5.09
Netherlands	39	3.76	Israel	8	4.98
Luxemburg	1	3.32	Spain	139	4.66
Venezuela	12	2.27	U.S.S.R.	885	4.59
Lebanon	3	2.27	Austria	29	4.17
Austria	12	1.73	Argentina	66	3.66
Sweden	12	1.68	Germany	174	3.44
Argentina	39	1.61	Italy	151	3.22
Ceylon	10	1.26	Netherlands	29	2.79
Finland	1	1.24	Paraguay	4	2.73
Czechoslovakia	13	1.05	Union of South Africa	34	2.63
Hungary	6	0.62	Poland	47	1.88
Spain	8	0.27	Japan	157	1.84
Israel	Nil	—	Chile	10	1.69
Paraguay	Nil	—	France	88	1.64
U.S.S.R.	5	0.84	Guatemala	4	1.36
Chile	4	0.05	Venezuela	4	0.76
Japan	1	0.04	Lebanon	1	0.76
Poland	1	0.04	Ceylon	4	0.50

¹ Latest year for which international information is available. Australian consumption for 1955 was 493 kilograms (52.5 kilograms per million of population).

of the world in 1953. This statement was supplied by the Commonwealth Department of Customs and Excise at the request of the Commonwealth Department of Health. Members of the committee were so disturbed by the figures for Australian consumption that they suggested that the statement should be published.

Out of the Past.

In this column will be published from time to time extracts, taken from medical journals, newspapers, official and historical records, diaries and so on, dealing with events connected with the early medical history of Australia.

FLOGGING IN SYDNEY.¹

[From the *Australasian Medical Gazette*, January, 1884.]

Two medical gentlemen for professional reasons who were present at the administration on Saturday last of the flogging to the four men who so richly deserved it, have given us their impressions. They express the opinion that the necessity of corporal punishment being admitted, the objects of the authorities should be to inflict as great an amount of physical pain, with as little proportionate injury, as possible. They believe this might be best done by causing the lashes to be given with due deliberation, instead of being hurriedly administered as on this occasion, the whole punishment of 25 lashes being got through in considerably less time than three minutes. Were a regulation made that there should be an interval of thirty seconds between strokes, the punishment would be unutterably more severe without causing any injury to the man flogged and with less shock to his nervous system. It would also bear a more just proportion to the time during which the prisoners' victim had suffered under the assaults which resulted in their conviction. On this occasion the whole of the lashes were given by one officer, and towards the end, in consequence of his tired arm, many of the strokes were very feeble. It was most evident that for the proper administration of the punishment two flagellators are necessary, who should give a dozen strokes each alternately. To those who have witnessed flogging as formerly practised in the army and navy the punishment seemed absurdly lenient, blood having been brought in one case only, and in this but very slightly whilst in military and naval punishments it generally ran pretty freely. No one can possibly believe that these larrikins deserve greater consideration or less severity than a soldier or sailor punished for drunkenness or insubordination. They also think that the lashes are administered too much on the one spot and that they should be distributed more generally over the dorsal region, so as to produce more superficial and less deep injury. They suggest that half the punishment to adults should be administered on the buttocks so that for the next fortnight or so the men flogged would be in such a state as to prefer standing to sitting thus advertising their punishment and be exposed to the ridicule of unsympathizing companions. The short term of imprisonment and their consequent liberation before the effects of the lash have disappeared is a good thought on the part of the Stipendiary Magistrates who ordered the infliction.

Special Correspondence.

LONDON LETTER.

FROM OUR SPECIAL CORRESPONDENT.

Improving the Health Service.

At the ninth annual conference of the Executive Councils Association held in London on October 19, 1956, the Minister of Health, the Right Honourable R. H. Turton, M.C., M.P., stressed the difficulties in repairing the deficiencies of the Health Service at a time of financial stringency when the

need to economize was greater than ever. He said that the Guillebaud Committee had acquitted the service of any charge of extravagance, and his task was to seek greater efficiency and determine priorities in expenditure. The depreciation in money hit the service harder than any other, and the Health Service had its part to play in the battle against inflation.

Referring to the doctors' pay claim, Mr. Turton stated that the Government felt that the claim could not be reconciled with their policy of fighting inflation by exhorting all sections of the community to observe restraint over increases of wages and salaries. In present circumstances the Government did not feel justified in giving consideration to any claim for a general increase in medical remuneration. Legal opinion had been sought on the question of a contractual obligation which formed the basis of the claim by the Negotiating Committee of the British Medical Association.

In the Minister's view, the general practitioner was the pivot of the whole Health Service, the clinical leader of the home health service team. The key lay in the good relationship between him and other members of the team. Greater opportunities in the prevention of illness existed where there was close partnership with the medical officer of health.

The maternity services were, as the Guillebaud Committee mentioned, in a state of some confusion, but the organization of the service would be reviewed at an early date. He had set up a committee under Lord Cranbrook for that purpose. The frontiers and training of other members of the general practitioners' domiciliary team, the home nurse, the health visitor, the social worker, were at present being examined by various working parties.

There had been a considerable increase in the cost of prescribing. In April, 1950, the average cost of prescriptions was 3s. 2½d. In April, 1956, the figure was 4s. 7½d. The Minister proposed four questions which might supply information of the background to this problem: Did the instruction and training of the medical student and young doctor sufficiently arm him to face the difficulties of present-day prescribing? What was the influence exerted by the hospitals both on young doctors and on doctors established in practice whose patients were referred to hospital? Should more be done about pressure from patients? What about the pressure on the doctor of the modern methods of salesmanship which the drug houses brought to bear on him?

Everything would continue to be done to help the doctor avoid unnecessary expense by supplying him with as much information as possible about the cost of new drugs and also about the cost of his own prescribing.

Increased Charges for Prescriptions.

From December 1 a charge of one shilling will be made for each item on a National Health Service prescription form. Strong feelings are being expressed in the medical profession and in the national Press on the imposition of these charges. Criticism is directed mainly against the method rather than against the principle of raising the charge. All evidence suggests that the mass of patients can well afford the increased cost, but it is the view of doctors, chemists and social workers, regardless of political associations, that the charge will fall most heavily on a group of patients badly planned to meet it. Those who need multiple prescriptions are those with long-standing complaints—for example, heart conditions, cancer, epilepsy, diabetes *et cetera*. They would have to pay two, three or four shillings per prescription, while the majority of ordinary patients would continue to pay one shilling as at present. Those receiving public assistance may claim reimbursement without much difficulty, but for others, only slightly less poor, reimbursement involves an amount of trouble out of all proportion to the sum involved. As *The Times* points out, the additional revenue from the increased prescription charges could be obtained by increasing the weekly personal contribution of all employed persons by one penny.

Shortage of Dentists.

The report of the McNair Committee on Recruitment to the Dental Profession, published in October, draws attention to the shortage of dentists and makes recommendations designed to enhance the status of dentists, attract more recruits to the profession and make the public more aware of the importance of sound, healthy teeth.

Summing up the position, the committee declares that the profession is failing to attract recruits in sufficient numbers because of the public attitude to dental health, and because of the possibilities of dentistry as a career. Many dentists are unwilling to advocate it; as a profession it is not as attractive as it could be. Parents able to afford it tend to

¹ From the original in the Mitchell Library, Sydney.

choose medicine as a career for their children, as they feel it offers greater scope and financial reward.

Over half the dentists in Great Britain are over middle age, and large numbers are expected to retire in the next few years. The intake of dental students is about 550 per year at present, but the committee considers that 1000 students per year are necessary until there are 20,000 dentists on the Register, compared with a present total of 15,700. In Great Britain there is one dentist to every 3273 of the population, in Canada one to 2790, in Sweden one to 2271, and in the United States of America one to 1667.

Correspondence.

FACTORS AFFECTING THE MORTALITY OF SMALL-BOWEL OBSTRUCTION.

SIR: I should be grateful if you would make a correction of a small error in my letter to the journal published in the issue of January 5. In my comments on Case 6 there is the statement: "Even when obstruction is regarded as desirable some preliminary intubation results in decompression" *et cetera*. This should read: "Even when operation is regarded as desirable some preliminary intubation" *et cetera*.

Yours, etc.,

CHARLES GALE.

Geelong,
Victoria,
January 9, 1957.

HÆMATEMESIS AND MELÆNA: A SURVEY.

SIR: I request permission to comment briefly on a paper published in THE MEDICAL JOURNAL OF AUSTRALIA, December 29, 1956, "Hæmatemesis and Melæna: A Survey", by Dr. J. Duggan. The use of the slow drip transfusion in the treatment of hæmatemesis was not universally adopted in the Royal Newcastle Hospital until the beginning of 1952. Consequently not every case in the series reviewed by Dr. Duggan (from July, 1949, to June, 1954) was treated in this manner. Evidence from cases treated during the two and a half years following the review will be the subject of a further communication.

Yours, etc.,

PETER I. A. HENDRY.

Royal Newcastle Hospital,
Newcastle,
New South Wales.
January 8, 1957.

Obituary.

WILBERFORCE STEPHEN NEWTON.

We are indebted to Dr. H. Hume Turnbull for the following appreciation of the late Sir Wilberforce Stephen Newton.

By the death of Sir Wilberforce Newton Melbourne has lost one of her most distinguished physicians and a man of high principles and great personal charm.

He was born in 1890 and educated at Hallebury College and the University of Melbourne. Immediately after graduation, in response to a call from the British Government for a hundred Australian doctors, he went to England and joined the Royal Army Medical Corps and served in the field until 1918. He retained thereafter a high appreciation of the British and Indian troops with whom he served.

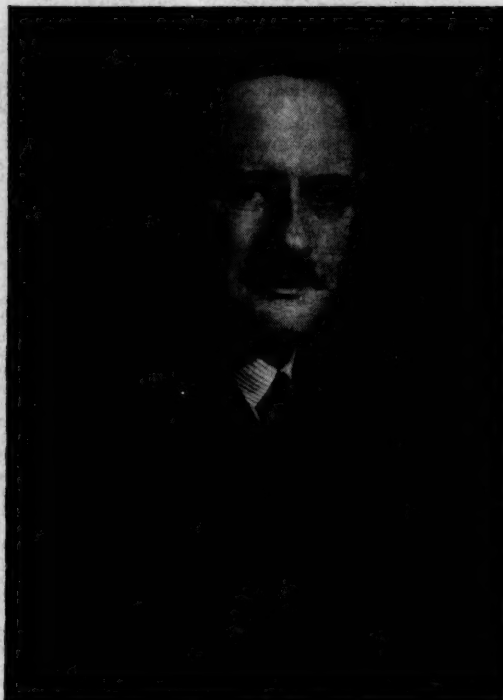
On his return to Australia in 1918, he became medical superintendent of the Alfred Hospital, to which institution he devoted much time throughout his life. When he retired from the position of superintendent he served as a clinical assistant until he was appointed physician to out-patients in 1923. He became physician to in-patients in 1933, and held this position until ill health compelled his retirement in 1948. He was then appointed consultant physician.

For over twenty years he was a member of the board of management of the hospital, a position he occupied until

his death. Although he was unable to take as active a part in recent years, his colleagues valued his opinion highly, and he himself kept closely in touch with the progress of events. He was determined that the Alfred Hospital should become a leading clinical school in Australia and worked constantly to this end in the board of management. He encouraged the spending of money on improving the students' accommodation and conditions, and on providing library facilities and prizes during the course. He lived long enough to see this dream come true, for the Alfred Hospital is now recognized as equal to any school in Victoria.

He was dean of the hospital's clinical school for some years. Its growth has been due largely to him and to Dr. Ewen Downie, who was sub-dean for many years; and the two worked tirelessly together to forward its every interest.

From 1933 until his retirement from the active staff of the hospital he was a member of the Faculty of Medicine. He was a lecturer in medicine in the University of Melbourne



for over twenty years and Stewart Lecturer in 1944 and 1945. He served as examiner in both M.B. and M.D. examinations for many years. He was also keenly interested in post-graduate teaching and was chairman of the Post-Graduate Committee for sixteen years.

He was an original member of the Association of Physicians of Australia and became a Foundation Fellow of The Royal Australasian College of Physicians when it was founded in 1938. He was a member of the Council of the College from 1944 to 1954 and was Vice-President from 1950 to 1952, when ill health forced his resignation. He served on the executive of the Anti-Cancer Council, and on the Consultative Council on Tuberculosis, which was set up by the Victorian Government, and has done a great deal to improve the care and treatment of tuberculosis in Victoria. He was one of the first Victorian physicians to insist on adequate hospital and sanatorium treatment for private patients. In spite of many difficulties and discouragements which these men encountered, they succeeded in improving the outlook of both the profession and the public on the management of this disease.

He had a large consulting practice in medicine with special interest in diseases of the chest, in which he was recognized as one of the leaders in this field in Victoria. His work was recognized by his election to the Fellowship of the American College of Chest Physicians.

In 1950 he was honoured by a knighthood, a recognition of his work for the community which gave great pleasure to his many friends both in and out of the profession.

He was a splendid teacher of students, always laying great stress on the simple important facts and requiring from each man a thorough knowledge of essentials and of the fundamental physiology underlying symptoms. He insisted on careful accurate examination and observation, and was little impressed by the airy nothings of those who could neither elicit nor explain physical signs. He took endless trouble to help his resident physicians, and never hesitated to visit the ward at any time if his help was needed for a patient whose condition was causing concern. As a result the position of resident physician in his wards was keenly sought. He never lost his interest in those whose work was genuine, and followed their future careers keenly, giving every help he could. Many successful physicians gladly acknowledge the deep debt they owe to W. S. Newton.

His wide knowledge and sound judgement ensured his success as a consultant and inspired the utmost confidence in both practitioner and patient. His kindness and unselfishness endeared him to his patients—many of whom refused to leave him even when his health became so bad that there was no certainty that an appointment made with him could be kept. He was often at work when most men would have been at rest at home.

For many years he had suffered from a very painful and distressing illness which restricted his activities, but he bore his burden with amazing courage and patience. One of his great disappointments was that, after he built a house at Flinders, where he hoped to enjoy the sailing and fishing which he loved, his state of health deteriorated. He became unfit for any exertion and could take no advantage of well-earned leisure.

He was a charming man, forceful and determined in his views, but scrupulously honest; and, though at times he was involved in disputes, he remained a loved and trusted friend even to those from whom he differed widely. He had, of course, a great many medical men and their families amongst his patients, and no trouble was too great and no hour too late for him. Many of us owe him far more than

can ever be repaid. His death leaves a sad gap in the ranks of our senior physicians. He is survived by his widow and four sons, the eldest of whom is now a member of the medical profession. To them we extend our deep sympathy.

Post-Graduate Work.

THE MELBOURNE MEDICAL POST-GRADUATE COMMITTEE.

PROGRAMME FOR FEBRUARY, 1957.

Gynaecology and Obstetrics Refresher Course.

A GYNÆCOLOGY AND OBSTETRICS REFRESHER COURSE for recent graduates will be conducted at the Royal Women's Hospital, Carlton, on a full-time basis for two weeks from February 11. This course is intended to fulfil the requirements of resident medical officers about to enter private practice, and a detailed programme of the lecture-demonstrations can be obtained from the Post-Graduate Committee. Enrolments should be made on the committee's form, accompanied by the fee of £10 10s., before January 23. Unfortunately, residential accommodation is not now available, but can be obtained at the University Hotel near by.

Country Courses.

Ballarat.—On Thursday, February 28, at 8 p.m. at Craig's Hotel, Ballarat, Dr. Bryan Keon-Cohen will lecture on "Backache". The local secretary is Dr. N. Pescott, 626 Sturt Street, Ballarat. The fee for the lecture is 15s., but those who have paid an annual subscription to the committee are invited to attend without further charge.

Courses for Higher Qualifications.

A course in anatomy will be held at the Anatomy Department, University of Melbourne, for M.S., D.G.O., D.O., D.L.O., D.P.M., D.A., D.D.R., D.T.R., D.C.R.A., Primary F.R.A.C.S.

DISEASES NOTIFIED IN EACH STATE AND TERRITORY OF AUSTRALIA FOR THE WEEK ENDED DECEMBER 20, 1956.¹

Disease.	New South Wales.	Victoria.	Queensland.	South Australia.	Western Australia.	Tasmania. ²	Northern Territory.	Australian Capital Territory.	Australia. ³
Acute Rheumatism	8(5)	1	..	..	..	..	9
Anthrax
Ancylostomiasis
Bilharziasis
Brucellosis	1	..	..	..	..	..	..	1
Cholera
Chorea (St. Vitus)	1	..	..	..	..	1
Dengue
Diarrhoea (Infantile)	3(3)	1(1)	2(2)	..	1	..	..	..	7
Diphtheria	1
Dysentery (Bacillary)	4(4)	..	1(1)	..	1	..	6
Encephalitis	1	..	..	..	..	..	..	1
Filariasis	1	..	..	..	..	..	1
Homologous Serum Jaundice
Hydatid
Infective Hepatitis	42(13)	5(3)	..	..	4(4)	..	1	..	52
Lead Poisoning
Leprosy
Leptospirosis	6	..	..	..	..	..	6
Malaria
Meningococcal Infection	1	..	..	..	1	..	..	..	2
Ophthalmia	4	..	..	..	4
Ornithosis
Paratyphoid
Plague
Poliomyelitis	1	..	2	..	..	..	..	..	3
Pyrexial Fever
Rubella	19(11)	1(1)	11(8)	5(5)	..	..	..	36
Salmonella Infection
Scarlet Fever	3(1)	3(1)	4(2)	1	1(1)	..	..	..	12
Smallpox
Tetanus	1(1)	..	..	2(1)	..	..	..	3
Trachoma	3	..	..	..	3
Trichinosis
Tuberculosis	25(16)	5(4)	6(3)	4(4)	3(3)	..	..	..	40
Typhoid Fever	1(1)	..	..	..	..	..	1
Typhus (Flea, Mite- and Tick-borne)
Typhus (Louse-borne)
Yellow Fever

¹ Figures in parentheses are those for the metropolitan area.

² Figures not available.

³ Figures incomplete owing to absence of returns from Tasmania.

and F.F.A.R.A.C.S. candidates at 2.15 p.m. on Mondays and Wednesdays, commencing on February 25 and continuing till August.

A course in physiology will be held at the Physiology Department, University of Melbourne, for M.D., M.S., D.L.O., D.O., D.G.O., D.P.M., D.D.R., D.A., Primary F.R.A.C.S., and F.F.A.R.A.C.S. candidates at 4 p.m. on Mondays and Wednesdays, commencing on February 25 and continuing till August.

A course in pathology will be held at the Pathology Department, University of Melbourne, for M.D. candidates and as a basic course for candidates for Part II of the M.S. and the diplomas at 1.30 p.m. on Mondays and Wednesdays, from March 4 till early July.

A course in physics for D.D.R., D.T.R. and D.C.R.A. candidates will be held at 4 p.m. on Thursdays from March 7 till June at the X-Ray and Radium Laboratory.

Enrolments.—Enrolments on the committee's form and accompanied by the fee will be accepted by the Post-Graduate Committee up till two weeks before the start of the course. Fees are £21 per subject. The total fee for Part I D.D.R. is £42.

Overseas Lecturer.

Dr. Ludwig Guttman, O.B.E., Director of the Spinal Injuries Centre, Stoke Mandeville, England, will be in Melbourne from February 17 to March 3, chiefly at the Austin Hospital. His visit will be sponsored by the Nuffield Foundation. He will lecture in the Medical Society Hall at 8.15 p.m. on February 27 on "The Management and Rehabilitation of Spinal Injuries".

MARCH.

Course in Surgery.

The honorary surgical staff of Saint Vincent's Hospital will conduct a course in surgery suitable for candidates for senior surgical qualifications, such as M.S. and F.R.A.C.S., for eight weeks from March 4 till April 26. The classes will be held each afternoon from Monday till Friday. They will consist of general and specialist surgical case demonstrations, pathology and X-ray demonstrations and lectures. The fee for this course is £31 10s., and enrolments should be made through the Melbourne Medical Post-Graduate Committee on their special form and accompanied by the fee. The closing date for enrolment is February 18, 1956.

Overseas Lecturer.

Dr. A. Ashley Weech, Professor of Pediatrics, Cincinnati, United States of America, will visit Melbourne from March 6 to 24. He will spend most of this time at the Royal Children's Hospital, will attend the Jubilee of the Paediatric Society of Victoria and will lecture for the Post-Graduate Committee.

INQUIRIES.

The address of the Melbourne Medical Post-Graduate Committee is 394 Albert Street, East Melbourne. Telephone: FB 2547.

Nominations and Elections.

THE undermentioned have applied for election as members of the New South Wales Branch of the British Medical Association:

Maxwell, Donald Charles, M.B., B.S., 1955 (Univ. Sydney), 19 Sproule Street, Lakemba, New South Wales.

Bradley, Malcolm George, M.B., B.S., 1955 (Univ. Sydney), 38 Wisdom Road, Greenwich, New South Wales.

Wald, Louis, M.B., B.S., 1956 (Univ. Sydney), 27 Davidson Avenue, Concord, New South Wales.

Woolard, Thomas John, M.B., B.S., 1955 (Univ. Sydney), 78 Victoria Road, West Pennant Hills, New South Wales.

Boon, Peter Eric, M.B., B.S., 1955 (Univ. Sydney), 605 New South Head Road, Rose Bay, New South Wales.

Child, Donald Stewart, M.B., B.S., 1956 (Univ. Sydney), 34 Anzac Avenue, Collaroy, New South Wales.

O'Riordan, Richard Joseph, M.B., B.S., 1955 (Univ. Sydney), 122 Carrington Road, Randwick, New South Wales.

Thew, Ian Phillip, M.B., B.S., 1954 (Univ. Sydney), 29 Benaroon Avenue, St. Ives, New South Wales.

Corrigendum.

IN the article "A Method of Fixation for Multiple Rib Fractures, with Report of a Case", by M. Glick, in the issue of January 5, 1957, page 6, the block for Figure I on page 7 has been inadvertently reversed. We regret this error.

Deaths.

THE following deaths have been announced:

MITCHELL.—Hugh William Fancourt Mitchell, on January 7, 1957, at Bairnsdale, Victoria.

MALCOLM.—Dr. John Malcolm, on January 13, 1957, at Sydney.

GRIEVE.—Dr. Percy Neil Grieve, on January 13, 1957, at Sydney.

Diary for the Month.

FEB. 5.—New South Wales Branch, B.M.A.: Organization and Science Committee.

FEB. 6.—Western Australian Branch, B.M.A.: Branch Council.

FEB. 6.—Victorian Branch, B.M.A.: Branch Meeting.

FEB. 7.—South Australian Branch, B.M.A.: Council Meeting.

Medical Appointments: Important Notice.

MEDICAL PRACTITIONERS are requested not to apply for any appointment mentioned below without having first communicated with the Honorary Secretary of the Branch concerned, or with the Medical Secretary of the British Medical Association, Tavistock Square, London, W.C.1.

New South Wales Branch (Medical Secretary, 135 Macquarie Street, Sydney): All contract practice appointments in New South Wales.

Queensland Branch (Honorary Secretary, B.M.A. House, 225 Wickham Terrace, Brisbane, B17): Bundaberg Medical Institute. Members accepting LODGE appointments and those desiring to accept appointments to any COUNTRY HOSPITAL or position outside Australia are advised, in their own interests, to submit a copy of their Agreement to the Council before signing.

South Australian Branch (Honorary Secretary, 80 Brougham Place, North Adelaide): All contract practice appointments in South Australia.

Editorial Notices.

MANUSCRIPTS forwarded to the office of this journal cannot under any circumstances be returned. Original articles forwarded for publication are understood to be offered to THE MEDICAL JOURNAL OF AUSTRALIA alone, unless the contrary be stated.

All communications should be addressed to the Editor, THE MEDICAL JOURNAL OF AUSTRALIA, The Printing House, Seamer Street, Glebe, New South Wales. (Telephones: MW 2651-2-3.)

Members and subscribers are requested to notify the Manager, THE MEDICAL JOURNAL OF AUSTRALIA, Seamer Street, Glebe, New South Wales, without delay, of any irregularity in the delivery of this journal. The management cannot accept any responsibility or recognize any claim arising out of non-receipt of journals unless such notification is received within one month.

SUBSCRIPTION RATES.—Medical students and others not receiving THE MEDICAL JOURNAL OF AUSTRALIA in virtue of membership of the Branches of the British Medical Association in the Commonwealth can become subscribers to the journal by applying to the Manager or through the usual agents and booksellers. Subscriptions can commence at the beginning of any quarter and are renewable on December 31. The rate is £5 per annum within Australia and the British Commonwealth of Nations, and £6 per annum within America and foreign countries, payable in advance.